PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group Art Unit:	3643
Attorney Docket No.:	121056-028
Applicant:	Yasushi KOHNO
Invention:	METHOD OF PREVENTING DEFECTIVE GERMINATION OR ROSETTE FORMATION OF SEED
Serial No:	10/007,186
Filed:	November 5, 2001
Examiner:	Andrea Valentini

Certificate Under 37 CFR 1.8(a)

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on June 2, 2008

Michael S. Gzybowski

BRIEF ON APPEAL

Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Further to Appellant's Notice of Appeal filed June 2, 2008 in connection with the above-identified application, Appellant resubmits the present Brief on Appeal.

REAL PARTY IN INTEREST

Appellant has assigned this application to Agritecno Yazaki Co., Ltd. in an assignment which was executed on October 30, 2001, and recorded in the U.S. Patent and Trademark Office on November 5, 2001 at Reel No. 012371 and Frame No. 0148.

RELATED APPEALS AND INTERFERENCES

Appeal No 2004-0035 was vacated and remanded to the Examiner on September 28, 2004.

STATUS OF CLAIMS

Claims 1, 4 and 5 are pending in this application. Claims 1, 4 and 5 stand under Final Rejection, from which rejection of claims 1, 4 and 5 this appeal is taken. Claims 2 and 3 were canceled.

STATUS OF AMENDMENTS

No Amendment(s) after Final was/were filed by appellants in this application.

SUMMARY OF CLAIMED SUBJECT MATTER

As set forth in independent claim 1, the present invention is directed to a method of preventing defective germination and rosette formation of a plant seed which tends to suffer from defective germination and rosette formation during growth thereof comprising the steps of:

a) leaving the plant seed to stand in a highly watery condition at a low temperature in a dark place for a period of time of from several days to several months to inhibit defective germination and rosette formation of the plant seed, the dark place being sufficiently dark to prevent the plant seed from germinating (See appellant's original specification: page 3, line 24 through page 4, line 5; page 4, lines 9-13; page 4, lines 14-17); and

b) drying the plant seed in a dark place being sufficiently dark to prevent the plant seed from germinating, said drying takes place immediately after leaving the plant seed to stand in the highly watery condition at the low temperature in a dark place (See appellant's original specification: page 5, lines 16-19; page 5, lines 6-10),

wherein in the step a) of leaving the plant seed in a highly watery condition the plant seed is immersed in water at a temperature of from 0 °C to 15 °C (See appellant's original specification: page 4, lines 6-8).

As set forth in independent claim 4, the present invention is directed to a method of preventing defective germination and rosette formation of a plant seed which tends to suffer from defective germination and rosette formation during growth thereof comprising the steps of:

a) leaving the plant seed to stand in a highly watery condition at a low temperature in a dark place for a period of time of from several days to several months to inhibit defective germination and rosette formation of the plant seed, the dark place being sufficiently dark to prevent the plant seed

from germinating (See appellant's original specification: page 3, line 24 through page 4, line 5; page 4, lines 9-13; page 4, lines 14-17); and

b) drying the plant seed in a dark place, before the seed becomes active, being sufficiently dark to prevent the plane seed from germinating, said drying takes place immediately after leaving the plant seed to stand in the highly watery condition at the low temperature in a dark place (See appellant's original specification: page 5, lines 16-19; page 5, lines 6-10),

wherein in the step a) of leaving the plant seed in a highly watery condition the plant seed is exposed to an environment having a relative humidity of about 100% and a temperature of from 0 °C to 15 °C (See appellant's original specification: page 3, line 24 through page 4, line 5; page 4, lines 6-8).

As set forth in independent claim 5, the present invention is directed to a method of preventing rosette formation of a plant seed which tends to suffer from rosette formation during growth thereof comprising the steps of:

a) leaving the plant seed to stand in a highly watery condition at a low temperature in a dark place for a period of time of from several days to several months to inhibit rosette formation of the plant seed, the dark place being sufficiently dark to prevent the plant seed from germinating (See appellant's original specification: page 3, line 24 through page 4, line 5; page 4, lines 9-13; page 4, lines 14-17); and

b) drying the plant seed in a dark place, before the seed becomes active, being sufficiently dark to prevent the plane seed from germinating, said drying takes place immediately after leaving the

plant seed to stand in the highly watery condition at the low temperature in a dark place (See appellant's original specification: page 5, lines 16-19; page 5, lines 6-10),

wherein in the step a) of leaving the plant seed in a highly watery condition the plant seed is immersed in water at a temperature of from 0 °C to 15 °C (See appellant's original specification: page 3, line 24 through page 4, line 5; page 4, lines 9-13; page 4, lines 14-17).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1, 4 and 5 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over Ohkawa et al., *Influence of Temperature Prior to Seed Ripening and at Germination on Rosette Formation and Bolting of Estoma Grandiflorum*, Scientia Horticulturae, Vol. 53, Issue 3, Feb. 1993, pp. 225-230 in view of Coolbear et al., *An Evaluation of the Potential of Low Temperature Pre-Sowing Treatments of Tomato Seeds as Means of Improving Germination Performance*, Ann. appl. Biol. (1987), 110, pp. 185-194 (1987) and U.S. Patent No. 5,294,593 to Khan.

ARGUMENT

The Examiner has relied upon Ohkawa et al. as teaching:

> ...a method of preventing rosette formation of plant seed which tend to suffer from rosette formation during growth by low temperature seed treatments of hydrated seeds at 3-5C for 5 weeks (Ohkawa abstract; Eustoma grandiforum) and inherently prevents defective germination i.e. Ohkawa teaches leaving a plant seed to stand in a

highly watery condition at a low temperature for a period of time from several days to rosette formation in a temperature from 0-15C.

The Examiner concedes that: "Ohkawa is silent on teaching that the plant seed is undergoes drying after immersion in the water and that the immersion and drying are conducted in a dark place."

The Examiner has relied upon Coolbear et al. as teaching:

...the seed treatment of allowing seeds to imbibe water at 10C in darkness and then drying the seeds (Coolbear Methods, first paragraph) and inherently relative humidity of 100% (Coolbear teaches the seeds are in a cover dish and are continuously kept moist thus the humidity if 100%, Methods line 2-4).

The Examiner takes the position that:

It would have been obvious to one of ordinary skill in the art to modify the teachings of Ohkawa with the teaching of Coolbear at the time of the invention for the known advantage of preventing defective germination and for storage since it is general knowledge in the art that light and darkness have effects on germinator.

The Examiner further takes the position that:

It would have been obvious to one of ordinary skill in the art that if a particular seed is a light germinator it is desirable to treat and store the seed in the dark to prevent germination.

The Examiner has relied upon Khan as teaching that:

...it is old and notoriously well-known to dry hydrated seeds in the dark to prevent a break in dormancy (Khan Co. 3 line 40-49).

The Examiner takes the position that:

It would have been obvious to one of ordinary skill in the art to modify the teachings of Ohkawa with the teachings of Khan at the time of the invention for preventing loss

> of dormancy for storing seeds for several months as taught by Khan (Khan Col. 3 line 50-52).

It is believed that the Examiner has misinterpreted the teachings of Ohkawa et al.

The Abstract indicates that Ohkawa et al. is concerned with decreasing rosette formation while preventing or suppressing seedling bolting.

Thus, Ohkawa et al. is not at all directed to any improvement in the germination of the seeds or "inherently prevent[ing] defective germination" as the Examiner states.

Note specifically the Abstract reads, in part:

> Rosette formation and subsequent bolting of Eustoma grandiflorum are influenced by **temperature conditions prior to seed ripening** and **after germination** has commenced. Rosette formation was decreased if **parent plants were matured** at 23/18°C (day/night) temperature was increased at 33/28°C. Further low temperature seed treatment of hydrated seed at 3°C or 10°C for 5 weeks decreased rosette formation and enhanced subsequent seedling bolting.

As can be seen, Ohkawa et al. is primarily directed at subjecting plants (not seeds) to low temperature treatments after germination and prior to seed ripening.

Experiment 1 of Ohkawa et al. corresponds to the cold treatment of plants referred to in the Abstract of Ohkawa et al. As set forth in Experiment 1, **plants** were transferred to natural-light phytotrons set at 33/28, 28/23 or 23/18°C day/night temperature. Seeds were then harvested from the plants and tested.

The "**further**" low temperature treatment of the hydrated seeds mentioned in the Abstract of Ohkawa et al. (and cited above) is clarified in Experiment 2 of Ohkawa et al. In Experiment 2:

> Seeds of 'Fukushihai' and 'Miyakomomo' were hydrated at 28/23°C for up to 3 days and then stored at 3 or 10°C for 5 weeks. These treatments were given under continuous irradiance (15.0-25.3 μmol m^{-2} s^{-1}).

As can be seen, Ohkawa et al. teaches hydrating the seeds at a higher temperature (28/23°C) for "up to 3 days" (Note: 3 days is an express upper time limit).

After this hydration step, the seeds are at stored at 3 or 10°C for 5 weeks during which storage the seeds are irradiated so that "Upon completion of the 3 or 10°C temperature treatment, ***seedlings*** were transferred into a 33/28 or 28/23°C (day/night) phytotron."

Ohkawa et al. clearly teaches – and requires – the continued irradiance to produce seedlings which are subsequently sown and tested.

Ohkawa et al. does not teach specifically teach "leaving the plant seed to stand in a highly watery condition at a low temperature.... for a period of time of from several days to several months and drying the seeds immediately after leaving the seeds stand in the highly watery condition.

Rather the seeds were expressly hydrated for only "up to 3 days" at 28/23°C and thereafter merely stored at 3 or 10°C for 5 weeks, and subsequently collecting seedlings.

After the hydration, Ohkawa et al. does not teach "leaving the plant seed to stand in a highly watery condition at a low temperature ***in a dark place*** for a period of time of from several days to several months as required by appellant's claimed invention.

Rather, Ohkawa et al. teaches irradiating the seeds and developing seedlings.

It would go against the express teachings of Ohkawa et al. to store the hydrated seeds in the dark.

Further, it is noted that there is no suggestion or motivation to modify Ohkawa et al. to store the hydrated seeds in the dark.

Further, there is no suggestion or motivation to dry the hydrated seeds of Ohkawa et al.

Coolbear et al. does not include any discussion as to the effect of the low-temperature pre-sowing treatment on rosette formation other than the statement that:

> No evidence was found for improved seeding growth rates per se as a result of pretreatment: in fact, initial axis growth may be temporarily reduced, probably as a consequence of depletion of reserves during the treatment period.

If anything, Coolbear et al. teaches that initial axis growth after germination may be at best "temporarily reduced."

Coolbear et al, does not teach that the low-temperature pre-sowing treatment prevents rosette formation.

Further, Coolbear et al. does not teach leaving the seeds in a highly watery condition at a low temperature in a dark place for a period of time of from several days to several months to inhibit defective germination and rosette formation of the plant seed as required by appellant's claims.

Moreover, Coolbear et al. does not teach the time-critical condition of drying the seed in a dark place before the seed becomes active, the dark place being sufficient to prevent the plant seed from germinating.

If anything Coolbear et al. teaches drying the seeds in open Petri dishes at room temperature.

From such a procedure it certainly cannot be inferred that Coolbear et al. provides any insight into (i.e. renders obvious) appellant's drying process that prevents defective germination and rosette formation.

Khan is directed at a method of "inducing releasable dormancy in non-dormant plant seeds" which involves soaking the seeds in a "**gibberellin synthesis inhibitor solution**."

As explained in column 2, lines 22-39 the gibberellin biosynthesis pathway includes seventeen steps. By introducing a gibberellin synthesis inhibitor into the seeds (by soaking the seeds in a gibberellin synthesis inhibitor solution), Khan induces dormancy into the seeds.

The Examiner had previously relied upon Khan as teaching:

> ...that it is old and notoriously well-known to dry hydrated seeds in the dark to prevent germination.

Presently the Examiner has relied upon Khan as teaching:

> ...it is old and notoriously well-known to dry hydrated seeds in the dark to prevent a break in dormancy (Khan Co. 3 line 40-49).

The drying discussed at column 3, lines 40-52 of Khan in drying step (c), in which the hydrated seeds are dried in a dark place in order to prevent the inactive condition (i.e. dormancy) of the seed, is carried out after the immersion step (a) and after the washing step (b).

Accordingly, the drying step (c) of Khan does not correspond to the drying step of the present invention in which the drying takes place immediately after leaving the plant seed to stand in the highly watery condition at the low temperature in a dark place.

Further, as the Examiner is no doubt aware, Khan fails to teach appellant's steps (a) and (b).

In the *Response to Arguments* section of the Office Action of November 2, 2007 the Examiner argued that:

> Ohkawa teaches allowing the seeds to sit in a hydrated condition at a low temperature for 5 weeks, 5 weeks is several days and more then on month (Ohkawa abstract).

It is only the Examiner's conjecture that the seeds that were hydrated for up to 3 days in Ohkawa et al. are thereafter allowed to sit in "highly watery condition" (per appellant's claims) during the storage taught by Ohkawa et al. The teachings of Ohkawa et al. do not support the Examiner's position.

The Examiner argued that Coolbear et al. teaches seed pre-treatment in a dark place at page 186 in reference to "allowing seeds to imbibe distilled water at a constant 10°C in darkness."

It is noted that this treatment is taught by Coolbear et al. as lasting 0.5 to 120 hours and afterwards the seeds were tried in open Petri dishes.

The time period of 0.5-120 hours is not at all comparable to the 5 weeks of storage taught by Ohkawa et al. during which seedlings are produced.

Moreover, the pregerminants were expressly removed and discarded by Coolbear et al. If a similar procedure were applied to and followed in Ohkawa et al. all the seedlings (which are collected for testing by Ohkawa et al.) would be discarded.

This means that the experimentation conducted by Coolbear et al. which involves drying imbibed seeds and throwing out pregerminants following by drying the seeds and testing the resulting seed has no relationship to Ohkawa et al. who conduct experimentation and tests on the seedlings obtained after hydration and storing under irradiation.

Thus, there is no basis for comparing and/or combining the teachings and conclusions reach by Ohkawa et al. and Coolbear et al.

In the Advisory Action of February 20, 2008 the Examiner takes the position that "Applicant is arguing the references individually."

As argued above, the teachings of the prior art references alone or in combination do not establish any combination of method steps that both prevent defective germination and rosette formation.

Thus arguing the individual teachings of the references is germane to establishing that the combination thereof does not render appellant's claimed invention obvious.

Only Ohkawa et al. mentions concerns about rosette formation and is otherwise silent about preventing defective germination. Coolbear does not mention preventing rosette formation. The gibberellin synthesis inhibitor that Khan uses to induce dormancy into the seeds has no practical application to Ohkawa et al. or Coolbear.

CONCLUSION

For the reasons advanced above, Appellant respectfully contends that the rejection of claims 1, 4 and 5 under 35 U.S.C. §103(a) as being unpatentable over Ohkawa et al., Coolbear et al. and Khans improper because the examiner has not met the burden of establishing a prima facie case of obviousness of appellants' claimed invention.

Reversal of the outstanding rejections on appeal is respectfully requested.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 12-2136 and please credit any excess fees to such deposit account.

Respectfully submitted,

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CLAIMS APPENDIX

Claim 1: A method of preventing defective germination and rosette formation of a plant seed which tends to suffer from defective germination and rosette formation during growth thereof comprising the steps of:

a) leaving the plant seed to stand in a highly watery condition at a low temperature in a dark place for a period of time of from several days to several months to inhibit defective germination and rosette formation of the plant seed, the dark place being sufficiently dark to prevent the plant seed from germinating; and

b) drying the plant seed in a dark place being sufficiently dark to prevent the plant seed from germinating, said drying takes place immediately after leaving the plant seed to stand in the highly watery condition at the low temperature in a dark place,

wherein in the step a) of leaving the plant seed in a highly watery condition the plant seed is immersed in water at a temperature of from 0 °C to 15 °C.

Claims 2 and 3 (Canceled)

Claim 4: A method of preventing defective germination and rosette formation of a plant seed which tends to suffer from defective germination and rosette formation during growth thereof comprising the steps of:

a) leaving the plant seed to stand in a highly watery condition at a low temperature in a dark place for a period of time of from several days to several months to inhibit defective germination and rosette formation of the plant seed, the dark place being sufficiently dark to prevent the plant seed from germinating; and

b) drying the plant seed in a dark place, before the seed becomes active, being sufficiently dark to prevent the plane seed from germinating, said drying takes place immediately after leaving the plant seed to stand in the highly watery condition at the low temperature in a dark place,

wherein in the step a) of leaving the plant seed in a highly watery condition the plant seed is exposed to an environment having a relative humidity of about 100% and a temperature of from 0 °C to 15 °C.

Claim 5: A method of preventing rosette formation of a plant seed which tends to suffer from rosette formation during growth thereof comprising the steps of:

a) leaving the plant seed to stand in a highly watery condition at a low temperature in a dark place for a period of time of from several days to several months to inhibit rosette formation of the plant seed, the dark place being sufficiently dark to prevent the plant seed from germinating; and

b) drying the plant seed in a dark place, before the seed becomes active, being sufficiently dark to prevent the plane seed from germinating, said drying takes place immediately after leaving the plant seed to stand in the highly watery condition at the low temperature in a dark place,

wherein in the step a) of leaving the plant seed in a highly watery condition the plant seed is immersed in water at a temperature of from 0 °C to 15 °C.

EVIDENCE APPENDIX

1. *In re Soni*, 34 USPQ 2d 1684 (CAFC 1995) (Cited on page 6 of appellant's amendment filed September 17, 2002).

2. *In re Borkowski*, 164 USPQ 642 (CCPA 1970) (Cited on page 5 of appellant's amendment filed March 10, 2005).

3. "The Condition for Germinating Grasses Based on IRST" (Exhibit "A" cited on page 6 of appellant's amendment filed August 11, 2005).

4. *In re Rinehart*, 189 USPQ 143 (CCPA 1976) (Cited on page 10 of appellant's amendment filed February 24, 2006 and on page 8 of appellant's amendment filed August 8, 2006).

5. *In re Shetty*, 195 USPQ 753 (CCPA) (Cited on page 10 of appellant's amendment filed February 24, 2006 and on page 8 of appellant's amendment filed August 8, 2006).

6. "Plant Growth" (Exhibit "A" cited on page 11 appellant's amendment filed August 8, 2006).

7. Tanwar, "Saline Water Management for Irrigation" (Exhibit "B" cited on page 11 of appellant's amendment filed August 8, 2006).

8. *Ex parte Hartmann*, 186 USPQ 366 (PTO BD App 1974) (Cited on page 12 of appellant's amendment filed September 4, 2007).

RELATED PROCEEDINGS APPENDIX

Appeal No 2004-0035 vacated and remanded to the Examiner on September 28, 2004.

broader claim from encroaching on prior art which the additional limitations of the dependent claims avoid. 904 F.2d at 686, 14 USPQ2d at 1949. *Wilson* does not address prosecution history. Further, in contrast to *Wilson*, the issue before us is not the range of equivalents which, if analyzed as hypothetical claims, would be patentable in light of the prior art, but what otherwise equivalent subject matter Southwall surrendered in the arguments made to the examiner.

We have considered Southwall's other arguments on appeal and find them unpersuasive and separate discussion of them is unwarranted.

CONCLUSION

Because as a matter of law Cardinal's product does not contain a "sputter-deposited dielectric" layer "directly contiguous" with a silver layer, even equivalently, the district court's grant of summary judgment for Cardinal was not in error. In accordance with the prosecution history, we interpret "sputter-deposited dielectric" to encompass only a dielectric layer formed by a one-step reactive sputtering technique. Moreover, Southwall is estopped by the prosecution history from asserting a range of equivalents for the limitation "sputter-deposited dielectric" that includes a dielectric formed by a two-step process. Because Cardinal's titanium oxide layer, which is directly contiguous with its silver layer, is formed by a two-step process, the titanium oxide is neither literally a "sputter-deposited dielectric" nor an equivalent of that limitation. As such, Cardinal's device lacks the limitation of claim 14 requiring a "sputter-deposited dielectric" "directly contiguous" with a silver layer and, therefore, as a matter of law Cardinal cannot infringe the '745 patent. Accordingly, summary judgment of non-infringement was proper.

AFFIRMED.

U.S. Court of Appeals
Federal Circuit

In re Soni

No. 94-1372

Decided May 9, 1995

PATENTS

1. Patentability/Validity — Obviousness — In general (§115.0901)

JUDICIAL PRACTICE AND PROCEDURE

Procedure — Judicial review — Standard of review — Patents (§410.4607.09)

Ultimate conclusion of obviousness made by Patent and Trademark Office is question of law, although underlying factual findings are reviewed for clear error; issue of whether patent applicant made showing of unexpected results is one of fact, subject to clearly erroneous standard of review.

2. Patentability/Validity — Obviousness — Secondary considerations generally (§115.0907)

Mere improvement in properties does not always suffice to show unexpected results, but applicant's showing of substantially improved results for invention, and statement that results were unexpected, should suffice to establish unexpected results absent evidence to contrary; applicants who presented specific data demonstrating substantially improved properties for claimed conductive polymer compositions in which polymer has molecular weight greater than 150,000, and stated that such results were unexpected, therefore established unexpected results for invention in absence of contrary evidence and successfully overcame prima facie case of obviousness.

JUDICIAL PRACTICE AND PROCEDURE

3. Procedure — Court of Appeals for the Federal Circuit (§410.03)

Procedure — Judicial review — Appealability (§410.4603)

Assertion by Patent and Trademark Office that applicants' showing of unexpected results for claimed chemical compositions is not commensurate with scope of claims cannot be considered for first time on appeal from decision by Board of Patent Appeals and Interferences upholding rejection of application claims, since new rationale cannot be applied to support rejection in appeal from board's decision.

Appeal from the U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences.

Patent application of Pravin L. Soni, Ceinwen Rowlands, Larry Edwards and Mark Wartenberg, serial no. 07/462,893 (conductive polymer compositions). From decision by Board of Patent Appeals and Interferences upholding examiner's rejection of claims 1-6, 8-12, and 21, applicants appeal. Reversed; Michel, J., dissenting.

Herbert G. Burkard, of Raychem Corp., Menlo Park, Calif., for appellant.

Karen A. Buchanan, assistant solicitor, PTO, Nancy J. Linck, solicitor, Albin F. Drost, deputy solicitor, Harris A. Pitlick, and James T. Carmichael, for appellee.

Before Michel, Lourie, and Bryson, circuit judges.

Lourie, J.

Pravin L. Soni, Ceinwen Rowlands, Larry Edwards, and Mark Wartenberg (collectively "Soni") appeal from the decision of the U.S. Patent and Trademark Office ("PTO") Board of Patent Appeals and Interferences affirming the examiner's final rejection of claims 1-6, 8-12, and 21 of application Serial No. 07/462,893, entitled "Conductive Polymer Compositions," as unpatentable on the ground of obviousness under 35 U.S.C. § 103 (1988). Because the PTO's conclusion that unexpected results were not shown was clearly erroneous, we reverse.

BACKGROUND

The claimed invention relates to conductive polymer compositions. Claim 1 is illustrative:

> 1. A melt-processed composition which comprises
>
> (i) an organic polymer which is not crosslinked and *has a molecular weight which is greater than 150,000* when measured by high temperature gel permeation chromatography, and
>
> (ii) a particulate conductive filler which is dispersed in the polymer and which is present in [an] amount sufficient to render the composition electrically conductive (emphasis added).

Soni's patent specification states that the claimed compositions have significantly improved physical and electrical properties compared to compositions using polymers having a molecular weight below 150,000. To illustrate this point, the specification describes a number of tests comparing the properties of a composition of the invention composed of polyethylene having a molecular weight of 203,000 with a comparative composition composed of polyethylene having a molecular weight of 148,000. The data show at least a fifty-fold increase in tensile strength for the higher molecular weight composition compared to the lower molecular weight composition. The data also show at least a five-fold increase in peel strength as well as improved resistivity and recovery behavior properties. From these data, the specification concludes that "[t]he tensile, peel, resistivity behavior and recovery tests show significantly improved properties for a polymer having a molecular [weight] of 203,000 compared to one having a molecular weight of 148,000, which are much greater than would have been predicted given the difference in their molecular weights."

During prosecution, the examiner rejected the claims over the following prior art:

Rosenzweig et al.	U.S. Patent 4,775,501
Soni et al.	U.S. Patent 4,921,648
Lunk et al.	U.S. Patent 4,624,990
Taylor	U.S. Patent 4,426,633
Wu et al.	U.S. Patent 4,228,118
Capaccio et al.	U.S. Patent 4,268,470
Ward et al.	U.S. Patent 3,962,205

The examiner first rejected claims 1-6, 8-12, and 21 under 35 U.S.C. §§ 102 or 103 as being anticipated by or obvious from the disclosures of the Rosenzweig or Soni patents. The examiner took the position that each of these references discloses all of the limitations recited in the claims. Second, the examiner rejected claims 1-6, 8-12, and 21 under § 103 as being unpatentable over Lunk or Taylor, taken alone or in combination with Rosenzweig, Soni, Wu, Capaccio, or Ward. The examiner asserted that each of Lunk and Taylor discloses a melt-processed composition comprising an organic polymer and a particulate conductive filler. While acknowledging that Lunk and Taylor are silent as to the molecular weight of the polymers used, the examiner argued that a person of ordinary skill in the art would have selected a polymer having a molecular weight within the claimed range. Wu, Capaccio, and Ward were cited for their disclosures of melt-processable organic polymers having molecular weights within the claimed range.

The rejections were subsequently made final, and Soni appealed to the Board. The Board affirmed the first rejection on the ground of § 103, but reversed it with respect to § 102. The Board found that the parent application commonly shared by Soni and

Rosenzweig[1] did not disclose the specific molecular weight limitation found in the claims and thus the claims were not anticipated by Soni or Rosenzweig under § 102(a) or (e). The Board found, however, that

> [i]f higher molecular weight melt-processable polymers were not available at the time the parent application was filed, they certainly became available by the time of appellants' invention, as evidenced by appellants' acknowledgements in the present specification, i.e., that the compositions in the appealed claims are based on commercially available polymers. *It is also acknowledged on this record that one of ordinary skill in the relevant art would have expected higher molecular weight polymers to result in better composition properties.* See the present specification at page 17, lines 22 to 28. On this record, it would have constituted nothing more than the exercise of ordinary skill for one to have selected commercially available higher molecular weight polymers to use in the melt-processes of the references to obtain advantageous physical properties in the resulting product (emphasis added).

In response to Soni's argument that its specification describes unexpected results, the Board stated:

> In the referenced portion of the present specification, it is also asserted that the improvement in properties resulting from the use of the specific class of molecular weights set forth in appellants' claims was "much greater than would have been predicted." However, *this record appears to be devoid of any evidence to support that conclusion.* Thus, *to whatever extent* it may be considered that *there is any evidence of unobviousness, it is clearly insufficient* to outweigh the evidence of obviousness of record (emphasis added).

The Board also affirmed the § 103 rejection based on Lunk or Taylor, taken alone or in combination with the other references cited by the examiner. The Board found that Lunk would have anticipated the claimed invention except that the reference does not explicitly disclose polymers having a molecular weight greater than 150,000. The Board further found that

> selection of a specific molecular weight from within the very high molecular weight class disclosed by Lunk would hav been obvious to one of ordinary skill in th relevant art, and there is no convincin evidence that unobvious results are assoc ated with the specific molecular weigh limitation in question. Similarly, there i not evidence that substitution of othe well-known melt-processable polymers i the Lunk composition produces unobviou results.

The Board noted that this analysis applie equally to the Taylor reference and foun the remaining references essentially supe fluous in view of Lunk or Taylor.

Soni requested reconsideration of th Board's decision, arguing that the Boar ignored the evidence of unexpected result disclosed in the specification. On reconsider ation, the Board adhered to its decision:

> That which appellants characterize a "evidence" consists of conclusory state ments made in the original specificatio concerning unpredictable difference which statements are *unsupported by an factual data.* In a given case, this coul conceivably be adequate; however, wher as here the evidence of obviousness foun in the references is quite strong, this typ of unsupported conclusion is inadequate t outweigh it (emphasis added).

Soni now appeals.

DISCUSSION

[1] We review *de novo* the PTO's ultimat conclusion of obviousness, a question of law although its underlying factual findings ar reviewed for clear error. *In re Vaeck*, 94 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed Cir. 1991); *In re Woodruff*, 919 F.2d 1575 1577, 16 USPQ2d 1934, 1935 (Fed. Cir 1990). The question whether an applican made a showing of unexpected results is on of fact, subject to the clearly erroneou standard of review.

On appeal, Soni concedes that the prio art relied upon establishes a *prima facie* cas of obviousness. Thus, the sole question fo resolution is whether Soni carried its burde of rebutting the *prima facie* case of obvious ness. *See In re Rijckaert*, 9 F.3d 1531, 1532 28 USPQ2d 1955, 1956 (Fed. Cir. 1993) (*prima facie* case of obviousness shifts bur den to applicant to come forward with rebut tal evidence or argument).

The references cited describe relevan compositions containing polyethylene and a conductive filler. We need not focus on th specific disclosures of the references since i is conceded that the correctness of the rejec tions boils down to the question whether the data in Soni's patent specification show that

[1] The Rosenzweig and Soni patents are both continuations-in-part of U.S. patent application Serial No. 596,761, filed April 4, 1984, now abandoned.

the compositions of the claims exhibit unexpectedly improved physical and electrical properties compared to lower molecular weight compositions.

Soni argues that it overcame the *prima facie* case of obviousness because its patent specification contains data showing that the claimed compositions do exhibit unexpectedly improved properties. Soni further argues that the Board ignored these data, pointing to the Board's statements that Soni's claim of unexpected results was "unsupported by any factual evidence" and that "this record is devoid of any evidence."

In reply, the PTO maintains that Soni has not met its burden of rebutting the *prima facie* case of obviousness. Specifically, the PTO contends that the Board did in fact consider the data in Soni's specification, but found the data unpersuasive. The PTO points out that Soni's statement that the results were unexpected is conclusory and that the record lacks any evidence or explanation why the results were unexpected. The Board, the PTO notes, found that Soni had acknowledged that improved properties would have been expected for higher molecular weight compositions. The PTO contends that, because Soni did not prove, or even state, how much improvement would have been *expected*, there is no factual basis for analyzing whether Soni's data show *unexpected* results. Thus, in the PTO's view, the comparative data are entitled to little probative weight. The PTO also contends that any showing of unexpected results made by Soni was not commensurate in scope with the appealed claims.

The patent statute provides that "[a] person shall be entitled to a patent unless" any of the § 102 or 103 bars applies. 35 U.S.C. § 102. When a chemical composition is claimed, a *prima facie* case of obviousness under § 103 may be established by the PTO's citation of a reference to a similar composition, the presumption being that similar compositions have similar properties. *See In re Dillon*, 919 F.2d 688, 692, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (en banc) ("structural similarity between claimed and prior art subject matter, . . . where the prior art gives reason or motivation to make the claimed compositions, creates a *prima facie* case of obviousness"), *cert. denied*, 500 U.S. 904 (1991). One way for a patent applicant to rebut a *prima facie* case of obviousness is to make a showing of "unexpected results," *i.e.*, to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected. The basic principle behind this rule is straightforward — that which would have been surprising to a person of ordinary skill in a particular art would not have been obvious. The principle applies most often to the less predictable fields, such as chemistry, where minor changes in a product or process may yield substantially different results.

Consistent with the rule that all evidence of nonobviousness must be considered when assessing patentability, the PTO must consider comparative data in the specification in determining whether the claimed invention provides unexpected results. *In re Margolis*, 785 F.2d 1029, 1031, 228 USPQ 940, 941-42 (Fed. Cir. 1986). However, "[i]t is well settled that unexpected results must be established by factual evidence. Mere argument or conclusory statements in the specification does not suffice." *In re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984); *see also In re Wood*, 582 F.2d 638, 642, 199 USPQ 137, 140 (CCPA 1978) ("Mere lawyer's arguments and conclusory statements in the specification, unsupported by objective evidence, are insufficient to establish unexpected results."); *In re Lindner*, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972) ("[M]ere conclusory statements in the specification . . . are entitled to little weight when the Patent Office questions the efficacy of those statements.").

Here, Soni's specification contains more than mere argument or conclusory statements; it contains specific data indicating improved properties. It also states that the improved properties provided by the claimed compositions "are much greater than would have been predicted given the difference in their molecular weights." The Board inferred from this statement a concession that a person of ordinary skill in the art would have expected a composition using a higher molecular weight polymer to yield better results than one using a lower molecular weight polymer. Further, while the Board accepted this part of the statement as true, it declined to accept the statement's conclusion that the improvements were much greater than would have been predicted. We think the Board read too much into the statement in concluding that it amounted to a concession that one skilled in the art would have expected improved properties. One can just as readily interpret the statement as meaning that one would not have expected the improvement that was realized, given the molecular weights, not that the improvement was expected. Moreover, it is illogical for the Board, without reason, to accept as true only that part of Soni's statement which supports the PTO's theory of unpatentability, while rejecting the remainder of the statement.

The Board further stated that it could have taken judicial notice of the fact that higher molecular weight polymers would have been expected to tolerate higher filler loadings without degradation in properties and that it could have taken notice of the fact that it is the polymer *per se* that primarily determines the mechanical properties of a filled polymer composition. To support the latter principle, the Board cited a technical dictionary, which states that "[t]he polymer matrix primarily determines the mechanical properties of the composite system." The dictionary does not state, however, that *higher molecular weight* polymers form improved conductive polymer compositions. Thus, we find the Board's reliance on judicial notice to be no more convincing than its reliance on Soni's alleged admission.

[2] Mere improvement in properties does not always suffice to show unexpected results. In our view, however, when an applicant demonstrates *substantially* improved results, as Soni did here, and *states* that the results were *unexpected*, this should suffice to establish unexpected results *in the absence of* evidence to the contrary. Soni, who owed the PTO a duty of candor, made such a showing here. The PTO has not provided any persuasive basis to question Soni's comparative data and assertion that the demonstrated results were unexpected. Thus, we are persuaded that the Board's finding that Soni did not establish unexpected results is clearly erroneous.

The cases cited by the dissent are not to the contrary. Neither *De Blauwe*, nor *Wood*, nor *Lindner* requires a showing of unexpectedness separate from a showing of significant differences in result. Nor does *Merck*, which involved compositions understood to differ only in "a matter of degree." Those are not the facts here, where substantially improved properties were shown. Given a presumption of similar properties for similar compositions, substantially improved properties are *ipso facto* unexpected. The difficulty postulated by the dissent in distinguishing substantial from insubstantial improvement is no greater than the PTO and the courts have encountered, successfully, for many years in making judgments on the question of obviousness. It is not unworkable; it is simply the stuff of adjudication. Nor does it change established burdens of proof. The PTO here established a *prima facie* case, the applicant responded to it with a showing of data, and the PTO made an inadequate challenge to the adequacy of that showing.

On appeal before us the PTO raises for the first time the argument that Soni's showing of unexpected results is not commensurate in scope with the claims. *See In re Dill*, 604 F.2d 1356, 1361, 202 USPQ 805, 808 (CCPA 1979) ("The evidence presented to rebut a prima facie case of obviousness must be commensurate in scope with the claims to which it pertains."). Here, claim 1 broadly encompasses all melt-processed compositions comprising a polymer having a molecular weight greater than 150,000. The proof of unexpected results, on the other hand, is limited to a single species within the claimed range, polyethylene having a molecular weight of 203,000. The same deficiency is said to apply to the dependent claims. Claim 6, for example, recites a composition in which the polymer is polyethylene having a molecular weight of 200,000 to 400,000.

[3] We will not consider this argument for the first time on appeal. *See De Blauwe*, 736 F.2d at 705 n.7, 222 USPQ at 196 n.7 ("[T]he Solicitor cannot raise a new ground of rejection or *apply a new rationale* to support a rejection in appeals from decisions of the board.") (emphasis added). Since the only rejection made and argued in the PTO was based on the asserted failure of the data concerning the 203,000 molecular weight composition to evidence unexpected properties, and we have concluded that that rejection was erroneous, we must reverse the rejection of all of the claims. If, following return of this case to the PTO, the PTO considers that a new obviousness rejection should be made of claims broad enough to encompass compositions that have not been held in this decision to have unexpected superiority, it is free to do so.

CONCLUSION

The Board's decision affirming the final rejection of claims 1-6, 8-12, and 21 is

RESERVED.

Michel, J., dissenting.

As the majority observes, the question presented by Soni's appeal is a narrow and factual one: namely, "whether the data in Soni's patent specification show that the compositions of the claims exhibit unexpectedly improved physical and electrical properties compared to lower molecular weight compositions." Slip op. at 6. I am unable to answer this controlling question in the affirmative. But, in reversing the Board's decision, the majority overturns a well-settled facet of the law of rejections for obviousness

by eliminating altogether one of the two requirements of a successful rebuttal case of unexpectedly improved results-namely, *objective* proof that the observed improvement was indeed unexpected. Having so amputated the applicable legal rule, the majority finds clear error where, applying precedent, I see no error at all. I therefore respectfully dissent.

DISCUSSION

According to Soni's specification, the claimed invention derives entirely from the "discover[y]" that use of "a melt-processable polymer having a molecular weight greater than 150,000" yields a conductive filler-polymer composition with "significantly improved physical and electrical properties, compared to those [made with] polymers of lower molecular weight, for the same filler loading." These improvements are, according to Soni, both "valuable and surprising."

The specification supports the assertion of significantly improved properties with data from a set of tests comparing two compositions. According to the specification,

> A number of physical tests were carried out on samples of polyethylene to show the significant improvement in the physical properties that is [sic, are] observed at a molecular weight value of 150,000. Tensile tests, peel tests, resistivity behavior tests and recovery behavior tests were carried out. Each test was carried out on samples of Marlex HXM 50100 (Polyethylene, molecular weight 203,000, a composition according to the invention) and also on comparative samples of Marlex 6003 (polyethylene, molecular weight 148,000, outside the scope of the present invention).

After detailing the results of these comparative tests, the specification continues with the following, ostensibly summary, assertion:

> The tensile, peel, resistivity behavior and recovery tests show significantly improved properties for a polymer having a molecular [weight] of 203,000 compared to one having a molecular weight of 148,000, which are much greater than would have been predicted given the difference in their molecular weights.

It is critically important to note that the final phrase of this sentence, an assertion made without objective support, is the *only* evidence Soni has *ever* offered to show that the variety of improvements observed in the change from a 148,000-molecular-weight to a 203,000-molecular-weight polymer were "much greater than would have been predicted" — that is, were unexpectedly large. It is also important to note that the majority concedes that the data show the observed *degree* of improvement but not that the observed degree of improvement was *unexpected*. Slip op. at 8 (Soni indicates improvements by "specific data," but only "states" unexpectedness).

The examiner rejected Soni's claims as anticipated by or obvious from a number of prior art references, and the Board affirmed the rejection on obviousness grounds. During the course of its analysis, the Board focused on the specification's assertion "that the improvement in properties . . . was much greater than would have been predicted'," but found the record devoid of any evidence to support that conclusion." The Board found that this statement, while some evidence of unobviousness, was clearly insufficient to outweigh the evidence of obviousness of record." It adhered to this view on reconsideration, observing that the only evidence of unexpectedness Soni brought forward "consists of conclusory statements made in the original specification concerning unpredictable differences, which statements are unsupported by any factual data.

On appeal, Soni "concede[s] that the claimed invention would be *prima facie* obvious under 35 U.S.C. § 103, but contend[s] that the evidence in the specification clearly rebuts the *prima facie* case and establishes the patentability of the claims." Soni's contention persuades me no more than it did the Board.

The applicable legal rules are both clear and longstanding. First, as we noted in *In re Oetiker*, [t]he *prima facie* case [of obviousness] is a procedural tool of patent examination, allocating the burdens of going forward as between examiner and applicant. . . . As discussed in In re *Piasecki*[, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984)], the examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability. If that burden is met, *the burden of coming forward with evidence or argument shifts to the applicant.*" 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992) (emphasis added) (citations omitted). Soni concedes that the examiner properly made out a *prima facie* case of obviousness, and thus concedes that it bore the burden of coming forward with evidence to rebut that case. Second, "whether [the applicant's] rebuttal evidence is sufficient to persuade the examiner that unexpected results exist is an evidentiary matter left for the trier of fact," *In re Johnson*, 747 F.2d 1456, 1460, 223 USPQ 1260, 1263 (Fed. Cir. 1984), and

reversed on appeal only where clearly erroneous, *In re Caveney*, 761 F.2d 671, 674, 226 USPQ 1, 3 (Fed. Cir. 1985). Far from clearly erring, the Board correctly evaluated Soni's rebuttal evidence, according to the controlling cases, as slight and insufficient.

One way for an applicant to satisfy the burden of coming forward with evidence to rebut the *prima facie* case of obviousness is to demonstrate that the claimed invention yields unexpected results. *In re Davies*, 475 F.2d 667, 670, 177 USPQ 381, 384 (CCPA 1973). As *In re Lindner* makes clear, the applicant's rebuttal evidence of unexpectedness must be objective:

> The affidavit and specification do contain *allegations* that synergistic results are obtained with all the claimed compositions, but . . . mere lawyers' arguments unsupported by *factual* evidence are insufficient to establish unexpected results. Likewise, mere conclusory statements in the specification and affidavits are entitled to little weight when the Patent Office questions the efficacy of those statements. . . . [W]e agree with the board that there is insufficient evidence to overcome the case of prima facie obviousness found to exist here.

457 F.2d 506, 508-09, 173 USPQ 356, 358 (CCPA 1972) (emphasis added) (citations omitted). *See also In re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984) ("It is well settled that unexpected results must be established by factual evidence. Mere argument or conclusory statements in the specification does not suffice."); *In re Wood*, 582 F.2d 638, 642, 199 USPQ 137, 140 (CCPA 1978) ("Mere lawyer's arguments and conclusory statements in the specification, unsupported by objective evidence, are insufficient to establish unexpected results."). *See also In re Carabateas*, 357 F.2d 998, 1001, 149 USPQ 44, 46-47 (CCPA 1966) (Rich, J., concurring in the judgment) ("[T]he art makes no suggestion whatever that a reversal of the ester linkage would result in an increased activity *approximating the nineteen-fold increase found by appellant*. At the very best, the art suggests an increase of the order of four to eight times. . . . The question is not, it seems to me, whether the art suggests *an* improvement, but rather whether it reasonably suggests *the particular* improvement relied upon for patentability in both its qualitative and quantitative sense."). The majority acknowledges this principle but declines to apply it to the case at bar.

Soni failed to come forward with factual evidence tending to establish the unexpectedness of the observed degree of improvement in the claimed composition's physical properties, choosing instead to rely on the combined force of its data about the improvements and the subjective conclusory statement that such improvements "are much greater than would have been predicted given the difference in their molecular weights." The Board read this statement, quite naturally, as a concession that some *lesser* degree of improvement in properties would have been predicted from the difference in molecular weights alone, or, in the Board's words, as an "acknowledge[ment]" that "one of ordinary skill in the relevant art would have expected higher molecular weight polymers to result in better composition properties." [1] In light of the concession, the lack of objective evidence of the *unexpectedness*, as distinct from the magnitude, of the improvements proved fatal to Soni's appeal before the Board, just as cases such as *Lindner* require. The majority, however, now excuses Soni by eliminating the requirement that the improvement's unexpectedness be demonstrated objectively.

The majority claims that "the Board accepted this [concessionary] part of the statement as true, [but] it declined to accept the statement's conclusion that the improvements were much greater than would have been predicted," and then criticizes this reasoning as "illogical." Slip op. at 8, 9. There is nothing in the Board's opinion, however, to suggest that it failed to credit Soni with the statement's full worth — namely, the worth of a candid report of Soni's sincere subjective belief that he would not have predicted the changes in properties that he observed on the basis of the difference in the polymers' molecular weights. Of course, such a conclusory statement reporting the inventor's subjective belief has virtually no worth at all as evidence of unexpectedness; despite the majority's appeal to them, Soni's actual candor is not doubted and his duty of candor is not relevant. Slip op. at 9. Our cases require objective rebuttal evidence of unexpectedness. Thus, far from falling prey to faulty

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[1] Indeed, Soni continued to make this same concession on appeal before us, albeit implicitly, *See, e.g.*, Reply Brief at 4-5 ("As to the results which would be expected with polymers of molecular weight less than 203,000, one of ordinary skill in the art, having learned of the surprising good results provided by a molecular weight of 203,000 as compared to a molecular weight of 148,000, and knowing that molecular weight is a continuously variable quantity, would expect that the improvements would continue to be observed as the molecular weight was reduced below 203,000, by a degree which was diminishing, but nonetheless surprising.").

reasoning, the Board correctly found that Soni's conclusory statement regarding the unexpectedness of the improvements, however heartfelt, was "clearly insufficient to outweigh the evidence of obviousness of record."[2]

Indeed, the Board's approach would have been proper even if Soni had never conceded that a lesser degree of improvement would have been predicted based on the change in molecular weights alone. Neither the specification nor any post-rejection submission contains objective evidence[3] tending to establish either (1) a baseline of expected improvements against which to measure the observed improvements, or (2) the lack of any such baseline expectation in the relevant prior art, as a result of which all degrees of improvement would be unexpected. Without establishing a baseline or the unavailability of one, however, unexpectedness cannot be proved.

Our decision in *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986), illustrates the point. Merck was the assignee of a patent claiming a method of treating depression in humans comprising oral administration of amitriptyline, or its non-toxic salts, in a daily dosage of 25 to 250 milligrams. During reexamination, the examiner rejected the relevant claims on both anticipation and obviousness grounds, and the Board sustained the rejection for obviousness on review. The prior art taught, *inter alia*, that (1) amitriptyline is psychoactive, (2) imipramine, which differs from amitriptyline only in the replacement of the unsaturated carbon atom in its central ring with a nitrogen atom, is a highly effective antidepressant, (3) the replacement of the nitrogen atom in the central ring of a phenothiazine compound with an unsaturated carbon atom yielded a thioxanthene derivative with strongly similar pharmacological properties, and (4) imipramine and amitriptyline have a variety of similar pharniacological properties unrelated to the treatment of depression. *Id.* at 1094-95, 231 USPQ at 377-78. On appeal, we affirmed the Board's conclusion that "one of ordinary skill in the medicinal chemical arts . . . would have expected amitriptyline to resemble imipramine in the alleviation of depression in humans." *Id.* at 1097, 231 USPQ at 379. Merck contended, as it had before the Board, that amitriptyline had unexpectedly more potent sedative and anticholinergic effects than imipramine, supporting its contention with an affidavit from a professor of psychiatry and the published record of a symposium of physicians and psychiatrists concerned with the treatment of depression. *Id.* at 1098, 231 USPQ at 380. Both the affidavit and the symposium, however, merely noted the difference in effects between imipramine and amitriptyline without touching on the unexpectedness of the fact of or degree of difference. *Id.* We rejected Merck's theory, reasoning as follows:

> The core of it is that, while there are some differences in degree between the properties of amitriptyline and imipramine, the compounds expectedly have the same type of biological activity. In the absence of evidence to show that the properties of the compounds differed in such an appreciable degree that the difference was really unexpected . . . appellants' evidence was insufficient to rebut the prima facie case. The fact that amitriptyline and imipramine, respectively, helped some patients and not others does not appear significant. As noted by the Board, a difference in structure, although slight, would have been expected to produce some difference in activity.

Id. at 1099, 231 USPQ at 381. In short, where an applicant fails to establish the relevant baseline according to which the Board can evaluate the unexpectedness of any observed improvements, he has failed to come forward with effective rebuttal evidence. It is true that *Merck* does not explicitly hold that unexpectedness must be proved *separately* by objective evidence. Nor do the earlier cited cases. But that, I submit, is their logic. Otherwise, an ostensibly two-part inquiry collapses in effect to a one-part inquiry.

According to the majority, "an applicant [who] demonstrates *substantially* improved results, as Soni did here, and *states* that the results were *unexpected* . . . establish[es] un-

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[2] One might also note that even if, as the majority claims, the Board had "accept[ed] as true only that part of Soni's statement," slip op. at 9, the Board would not thereby have violated any principle of logic. Rather, it would have been obeying principles of experience. Soni's concession was a statement against its own proprietary interest and thus more likely to be true. *See, e.g.*, Fed. R. Evid. 804(b)(3) ("statement against interest" exception to the rule against hearsay). The latter part of the statement, by contrast, was completely self-serving and thus less likely to be true.

[3] I do *not* understand the requirement that the evidence be objective to require that it be numerical. In other words, quantitative tests, by the applicant or in the prior art, are not the *sine qua non* of objectivity; to be objective, the evidence must justify, rather than merely report, the subjective experience of surprise at an observed degree of improvement.

expected results *in the absence* of evidence to the contrary." Slip op. at 9. This new rule for assessing an applicant's rebuttal evidence eliminates what I take to be the applicant's burden of coming forward with objective evidence of unexpectedness and thus directly contradicts the holdings I discern from the controlling cases. Quite apart from the quick work it makes of cases such as *Lindner* and *Merck*, however, the majority's new rule may be inherently unworkable. For example, one may well ask how large improvements in results must be before the Board must consider them to be "*substantially* improved results" such that they amount to an effective rebuttal of a *prima facie* case of obviousness. The majority provides no guidance on the question, despite how critical it is to the workings of the new rule.

Perhaps the majority means to say little more than that, for claims drawn to polymer compositions, a 50-fold improvement in tensile strength after a 37% increase in the polymer's molecular weight requires the conclusion that the claimed invention is unobvious, limiting the effect of this case largely to the world of conductive polymer composition technologies. This reading would make the majority's decision relatively innocuous but all the more mysterious a departure from the two-part requirement of the governing cases. Or perhaps the majority means to say, more generally, that examiners, Board members, and Federal Circuit judges will know "substantial" improvements when they see them. Disagreements among these evaluators are, of course, inevitable, and will likely be frequent. This reading, though less perplexing, would have far broader implications: unhindered by any objectively established baseline of expected improvement in the relevant art, the assessment of an applicant's unsupported assertion that the observed degree of improvement was unexpected can flex to suit the taste of the assessor, thus destabilizing the obviousness inquiry and virtually ensuring litigation through final appeal to us in most every case of allegedly unexpected improvement. The resulting loss of objectivity and predictability bodes ill for patentability determinations.

Similarly perplexing is the majority's reference to "*the absence of* evidence to the contrary." Slip op. at 9. First, this eliminates the *applicant's* obligation to come forward with evidence, the obligation that was the heart of the established rule. Second, it assumes that an unfair burden has been placed on the applicant. If the burden were one of persuasion, perhaps. But a mere burden of coming forward?

CONCLUSION

I question the desirability of the majority's new rule for assessing an applicant's rebuttal evidence of unexpectedness, according to which there need not be *any* objective evidence of unexpectedness other than the inventor's unsupported assertion that an artisan would not have expected so great an improvement in light of the changes made. Even if desirable, such a rule is certainly not the one our cases have established. Nor does the majority merely create an exception to the settled rule; it altogether abolishes the rule in favor of a "substantially improved results" standard that will often be met. Many cases will be decided differently in the future as a consequence.

Because of dramatic improvements here, the majority sets off on a dramatic departure from the law as it stood before this case, a departure I do not think it either explains or justifies. Nor will the new rule be easy to apply or predictable in its application. If the old rule is too harsh here, then at most a narrowly defined exception could perhaps be crafted. Instead, the majority upends settled law for all cases in all arts. Like the Board, I would follow the rule of cases such as *Merck* and *Lindner* and would thus affirm the Board's rejection of Soni's application.

U.S. District Court
Northern District of California

American Economy Insurance Co. v. Reboans Inc.

No. C-92-4341-DLJ

Decided December 27, 1994

TRADEMARKS AND UNFAIR TRADE PRACTICES

1. Infringement; conflicts between marks — In general (§335.01)

Insurance policy that includes coverage for "advertising injury" caused by insured arising out of "infringement of copyright, title or slogan" imposes duty on insurer to defend insured in action alleging trademark infringement, since policy must be construed to provide coverage for injuries arising out of insured's infringement of name or designation, if such infringement was committed in course of advertising insured's goods, and since complaint in underlying suit alleges that plaintiff therein suffered recoverable

With this we disagree for the reasons stated above with regard to the Davis reference. Appellants have excluded from the scope of their claims any purified natural product by the recitation "synthetic." This word, as we have shown above, has a reasonably precise meaning and therefore does not render the claims indefinite. It is not contended, and we are not holding, that the word *synthetic* alone makes the claimed composition new. We are holding that, as used here, the word is not indefinite and does not provide a basis for rejecting the claims under the second paragraph of § 112. We conclude that the board erred in affirming the rejection under 35 U.S.C. 112.

The decision of the board is *affirmed* as to claims 2, 7, 16, 21, 25 and 30, and *reversed* as to claims 1, 3, 5, 6, 8, 10-15, 17, 19, 20, 22, 24, 26, 28, 29 and 31.

Court of Customs and Patent Appeals

In re BORKOWSKI AND VAN VENROOY

No. 8214 Decided Mar. 12, 1970

PATENTS

1. Specification — Sufficiency of disclosure (§62.7)

Specification need not contain working example if invention is otherwise disclosed in such a manner that one skilled in the art will be able to practice it without an undue amount of experimentation; considering nature of claimed invention (preparation of oxygenated hydrocarbons), the few hours of experimentation required are not an undue amount of time.

2. Claims — Indefinite — In general (§20.551)

Since rejection of claims for failure to particularly point out and distinctly claim invention is predicated only on criticisms of disclosure portion of specification, they are not relevant to portion of second paragraph of 35 U.S.C. 112 which pertains only to claims.

3. Claims — Indefinite — In general (§20.551)

Requirement of second paragraph of 35 U.S.C. 112 is not that claims particularly point out and distinctly claim "the in tion" but the "subject matter which ap cant regards as his invention"; this m that applicant must particularly point and distinctly claim subject matter sough be patented.

4. Claims — Indefinite — In gen (§20.551)

Claims — Specification must supp (§20.85)

35 U.S.C. 112 does not permit exam to study applicants' disclosure, formula conclusion as to what examiner regard broadest invention supported by disclos and then determine whether claims broader than examiner's conception of "the invention" is; first sentence of sec paragraph of section 112 is essentially a quirement for precision and definitenes claim language; if scope of subject ma embraced by claim is clear, and if appli has not otherwise indicated that he int claim to be of different scope, claim particularly point out and distinctly c the subject matter which applicant reg as his invention, i.e., if "enabling" disclo of specification is not commensurate in s with subject matter encompassed by cl that fact does not render claim imprecis indefinite or otherwise not in compli with second paragraph of section 112; rat claim is based on insufficient disclo (first paragraph of section 112) and sh be rejected on that ground.

5. Claims — Broad or narrow — general (§20.201)

Patentability — Anticipation — general (§51.201)

Claim which is of such breadth tha reads on subject matter disclosed in prio is rejected under 35 U.S.C. 102 rather under second paragraph of section 112.

6. Specification — Sufficiency of dis sure (§62.7)

There is no magical relation betw number of representative examples breadth of claims; number and variet examples are irrelevant if disclosure is " bling" and sets forth the "best mode cont plated."

Particular patents—Hydrocarbons

Borkowski and Van Venrooy, Prepara of Oxygenated Hydrocarbons, claims 1

12 of application allowed; claims 7 to 10 refused.

Appeal from Board of Appeals of the Patent Office.

Application for patent of Walter L. Borkowski and John J. Van Venrooy, Serial No. 144,221, filed Oct. 10, 1961; Patent Office Group 120. From decision rejecting claims 7 to 12, applicants appeal. Affirmed as to claims 7 to 10; reversed as to claims 11 and 12.

BARRY A. BISSON, Wilmington, Del., for appellants.

JOSEPH SCHIMMEL (JACK E. ARMORE of counsel) for Commissioner of Patents.

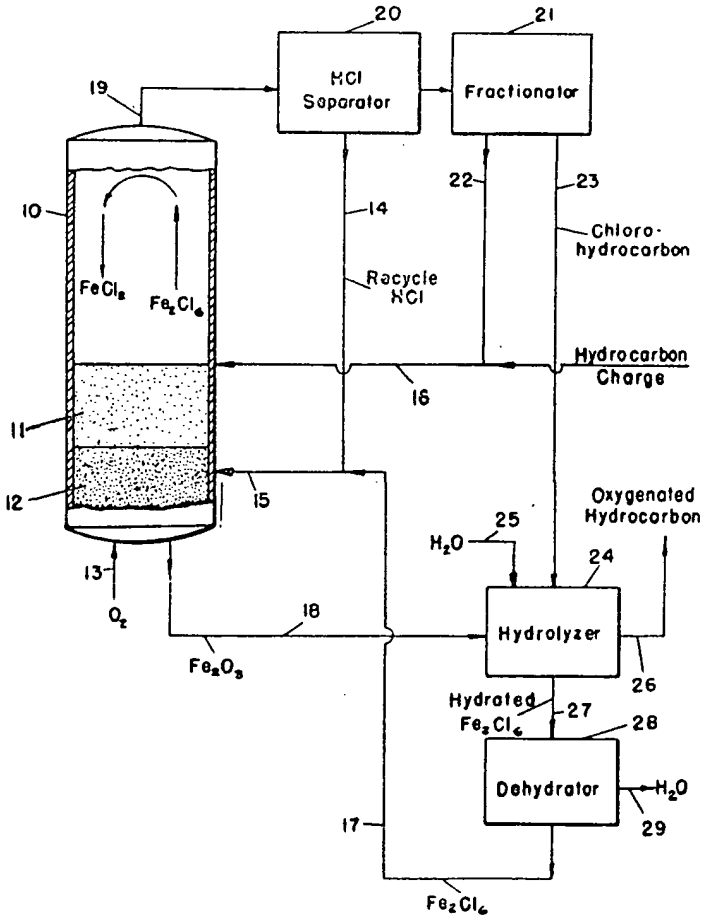
Before RICH, Acting Chief Judge, ALMOND, BALDWIN, and LANE, Associate Judges, and MATTHEWS, Senior Judge, District Court for the District of Columbia, sitting by designation.

RICH, Acting Chief Judge.

This appeal is from the decision of the Patent Office Board of Appeals affirming the rejection of claims 7-12 of application serial No. 144,221, filed October 10, 1961, entitled "Preparation of Oxygenated Hydrocarbons." No claim is allowed.

The claimed invention is a process for producing oxygenated hydrocarbons such as alcohols, glycols, aldehydes, and acids by reacting hydrocarbons with ferric chloride in vapor phase and hydrolyzing the resulting chlorohydrocarbon. The reaction of ferric chloride with hydrocarbons is commonly referred to in the art as "ferrichlorination."

The following drawing from appellants' specification is a schematic illustration of the process:



When read with reference to this drawing, claim 7 sufficiently describes the process for the purposes of this opinion:[1]

7. Method of preparing oxygenated hydrocarbon which comprises:

(a) feeding hydrocarbon in vapor phase at an intermediate level into a reactor maintained at a temperature in the range of 315-500°C., said hydrocarbon being a vapor at the selected reaction temperature and said reactor containing beneath the level of hydrocarbon introduction a bed of iron compounds comprising a ferrous chloride mass in its upper part and a ferric oxide mass in its lower part,

(b) feeding gaseous ferric chloride into said reactor and reacting it with the hydrocarbon above said bed, whereby chlorination of hydrocarbon occurs with the formation of by-product hydrogen chloride and the ferric chloride is reduced to solid ferrous chloride which falls downwardly to said bed,

(c) removing a mixture of chlorohydrocarbon and hydrogen chloride from the upper part of said reactor,

(d) recovering hydrogen chloride from the mixture,

(e) introducing the hydrogen chloride into the bed at a level near the top of the ferric oxide mass,

(f) passing oxygen into the ferric oxide mass beneath the level of introduction of the hydrogen chloride,

(g) flowing said oxygen upwardly through the bed and in contact with the ferrous chloride, whereby the ferrous chloride is continuously converted in part to gaseous ferric chloride and in part to ferric oxide,

(h) removing ferric oxide from the bottom of said reactor,

(i) contacting said chlorohydrocarbon with water at a temperature in the range of 100-200°C. and in the presence of the removed ferric oxide, whereby the chlorohydrocarbon is hydrolyzed to oxygenated hydrocarbon and the ferric oxide is converted to hydrated ferric chloride,

(j) dehydrating the ferric chloride,

(k) and recycling the dehydrated ferric chloride to said reactor in amount substantially equivalent to the ferric oxide removed therefrom.

Claim 8 depends from claim 7 and recites a preferred temperature range of 350-425°C. for step (a); claims 9 and 10 depend, respectively, from claims 8 and 7 and recite a preferred temperature range of 120-160°C. for step (i); and claims 11 and 12 each depend from claim 7 and require, respectively, that the "hydrocarbon" be "methane" and "ethane."

The examiner rejected claims 7-12 "as based on an insufficient disclosure under 35 U.S.C. 112" and claims 7-10 as failing to "particularly point out and distinctly claim the invention as required by 35 U.S.C. 112." There is no art rejection.

With respect to the first rejection, the examiner was of the opinion that appellants' description of their invention "is not such that it would enable one skilled in the art to practice the present invention, particularly with reference to the chlorination step." He mentioned "relative amounts of the 'hydrocarbon'" and "magnitude of reaction times" as two parameters which appellants should have disclosed more fully and, while acknowledging that a specification need not "read as instructions to a technician" and that "[p]erhaps one might, after a few hours of experimentation, determine how to carry out and control the chlorination of the simplest hydrocarbon, methane," the examiner stated:

> But, the whole purpose of Section 112 is to obviate the necessity for such experimentation. Moreover, the conditions are obviously not the same for methane as they are for the myriad of other hydrocarbons contemplated and urged to be suitable for use in the instant process.

Sustaining this rejection, the board stated, inter alia:

> The examiner has pointed to the possible variations in the time of chlorination, probably because this is a demonstratably [sic] variable and important parameter. The disclosure, though, is no more deficient in this respect than with respect to any other of its values which would help to illustrate the "mode of operation" in which appellants believe their invention to lie. Appellants do not believe that the time of chlorination is a critical aspect of their process and, probably, if you consider this as a single parameter they are correct

[1] It will help, in following the claim, to know that:

ferric chloride is "Fe_2Cl_6" shown in reactor 10 and in lines 15 and 27;

ferric oxide is "Fe_2O_3" shown in the reactor at 12 and in line 18;

solid ferrous chloride is "$FeCl_2$" shown in the reactor at 11;

oxygen is "O_2" introduced into the reactor at 13;

hydrogen chloride is "HCl"; and

the end product of the process is the "Oxygenated Hydrocarbon" at center right of the drawing.

in this, but the asserted novelty in the mode of operation which invites a careful balance of a number of distinct reactions makes illustration particularly necessary. Desirably and necessarily, such illustration should provide an exemplary correlation of the times of reaction, rates of reactant, feed and material removal (chlorinated product, ferric oxide, HCl, etc.). This would inform a man skilled in the art of the actual feasibility of appellants' process, and provide some sort of jumping off place in a plunge into the unknown when planning a series of experiments from which the necessary operating parameters of the process may be determined.

[1] The "exemplary correlation" which the board considered necessary would appear to be nothing more nor less than a specific working example. However, as we have stated in a number of opinions,[2] a specification need not contain a working example if the invention is otherwise disclosed in such a manner that one skilled in the art will be able to practice it without an undue amount of experimentation. Here, while it may be that an "exemplary correlation" of parameters such as times of reaction and rates of reactant feed and product removal would give the worker in the art some useful information and provide a "jumping off place," we see no basis for concluding that without such information the worker in the art would not be enabled by the specification to practice the invention, i.e., to "balance" the several reactions involved in appellants' process. The "few hours" experimentation mentioned by the examiner certainly would not seem to be an undue amount of time considering the nature of the claimed invention. We therefore cannot agree with the reasons given by the examiner and the board for concluding that appellants' specification does not comply with §112. The rejection of claims 7-12 "as being based on an insufficient disclosure" is accordingly reversed.

As above stated, the examiner additionally rejected claims 7-10 "for failing to particularly point out and distinctly claim the invention as required by 35 U.S.C. 112." This language is that of the second paragraph of 112, first sentence. The examiner was of the opinion that claims 7-10 "are unduly broad and indefinite in the recitation of the 'hydrocarbon' reactant," his reasons being as follows:

> This term ["hydrocarbon"] encompasses an almost limitless number of compounds, and, hence, is *not adequately supported by the somewhat limited disclosure.* The salient *absence of a representative example* for the various types of hydrocarbons alleged to be suitable for use in the instant process further render[s] the *support for the breadth of the claims on appeal inadequate.* [Emphasis added.]

[2] We have two difficulties with these reasons. First, since the rejection of the claims is predicated only on criticisms of the disclosure portion of the specification, we do not see how they are relevant to that portion of the second paragraph of §112 from which the examiner was quoting, namely, the first sentence, which pertains only to claims and reads in full:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter *which applicant regards as his invention.* [Emphasis added.]

And, second, regardless of the relevance of these criticisms to the requirements of the second paragraph of §112, we do not find the criticisms to have merit.

[3] With respect to our first difficulty, the examiner's apparent paraphrase of the first sentence of the second paragraph of §112 is incomplete in a most important respect. While the examiner states the requirement to be claims which "particularly point out and distinctly claim *the invention*" (emphasis added), §112 actually requires claims "particularly pointing out and distinctly claiming *the subject matter which applicant regards as his invention*" (emphasis added). In reality, this means that applicant must particularly point out and distinctly claim the *subject matter sought to be patented.*

[4] The examiner's approach to determining whether appellants' claims satisfy the requirements of §112 appears to have been to study appellants' disclosure, to formulate a conclusion as to what he (the examiner) regards as the broadest invention supported by the disclosure, and then to determine whether appellants' claims are broader than the examiner's conception of what "the invention" is. We cannot agree that §112 permits of such an approach to claims. The first sentence of the second paragraph of §112 is essentially a requirement for *precision and definiteness* of claim language. If the scope of subject matter embraced by a claim is clear, and if the applicant has not otherwise indicated that he intends the claim to be of a different

[2] E.g., In re Long, 54 CCPA 835, 368 F.2d 92, 151 USPQ 640 (1966), and cases cited therein. Compare Minerals Separation, Ltd. v. Hyde, 242 U.S. 261, 270-271 (1916).

scope,[3] then the claim does particularly point out and distinctly claim the subject matter which the applicant regards as his invention. That is to say, if the "enabling" disclosure of a specification is not commensurate in scope with the subject matter encompassed by a claim, that fact does not render the claim imprecise or indefinite or otherwise not in compliance with the *second* paragraph of §112; rather, the claim is based on an *insufficient disclosure*[4] (§112, first paragraph) and should be rejected on that ground. See In re Fuetterer, 50 CCPA 1453, 319 F.2d 259, 138 USPQ 217 (1963); In re Kamal, 55 CCPA 1409, 398 F.2d 867, 158 USPQ 320 (1968); and In re Wakefield, 164 USPQ (PA 8192), decided concurrently herewith. Thus, just as a claim which is of such [5] breadth that it reads on subject matter disclosed in the prior art is rejected under §102 rather than under the second paragraph of §112, a claim which is of such breadth that it reads on subject matter as to which the specification is not "enabling" should be rejected under the first paragraph of §112 rather than the second. We do not intend hereby to suggest that rejections under §112 must be labeled "first paragraph" or "second paragraph." What we do suggest is that it should be made clear exactly which of the several requirements of §112 are thought not to have been met. Is the claim unclear or is the specification's disclosure inadequate to support it?

[6] As to the merits of the conclusions and reasons upon which the examiner based this rejection, we do not agree either that claims 7-10 are rendered "unduly broad" or "indefinite" by the term "hydrocarbon" or that a "representative example for the various types of hydrocarbons" is needed. As appellants point out, claims 7-10 are limited to hydrocarbons which are in the vapor phase at the reaction temperature and thus do not call for just any hydrocarbon. Moreover, there is no magical relation between the number of representative examples and the breadth of the claims; the number and variety of examples are irrelevant if the disclosure is "enabling" and sets forth the "best mode contemplated."

The board did not expressly accept or reject the examiner's reasons for separately rejecting claims 7-10 under §112, second paragraph. Instead, the board "affirmed" this rejection while observing *for the first time* that although appellants' specification suggests that the hydrocarbon used in their process must be one which, upon being ferrichlorinated, will yield a *chlorinated product maintainable in vapor phase* at the reaction temperature, claims 7-10 contain no corresponding limitation.[5] On this point the board said:

> The requirement that the product be a vapor is obviously an important one because we find *no description* in the specification of *how* the liquid and solid products and by-products are to be removed from the chlorination vessel. [Emphasis added.]

Although this statement relates only to alledged deficiencies of the *specification* and although, as pointed out above, such deficiencies give rise to rejections under the first and not the second paragraph of §112, appellants have not complained that they were misled by this confusion nor do they dispute that claim 7 (and claims 8-10 by dependence) should contain the additional limitation. Neither have appellants sought to have the board denominate the raising of this issue a new ground of rejection under Rule 196(b). Accordingly, we are constrained to affirm the decision of the board as to claims 7-10.

However, we note that in a Request for Reconsideration addressed to the board, appellants asked, inter alia, that

> * * * a new decision be made, in accordance with Rule 196(c), which includes an explicit statement that Claims 7-10 may be allowed if they are amended by the applicants to include the limitation that the chlorinated products be maintained in vapor phase at the reaction temperature.

Rule 196(c) provides:

> (c) Should the decision of the Board of Appeals include an explicit statement that a claim *may be allowed in amended form*, applicant shall have the right to amend in conformity with such statement which shall be binding on the primary examiner in the absence of new references or grounds of rejection. [Emphasis added.]

The board refused appellants' request, saying only:

[3] See In re Prater, 56 CCPA 1381, 415 F.2d 1393, 162 USPQ 541 (1969), where the applicant did indicate an intended scope different from our interpretation.

[4] A disclosure may, of course, be insufficient to support one claim but sufficient to support another.

[5] In this regard, the specification states:

> The above-described portion of the process is applicable to the ferrichlorination of any hydrocarbon stock which is a vapor at the selected reaction temperature within the range of 315-500°C. *and whose chlorination products can be maintained in vapor phase at such temperature level.* [Emphasis added.]

We find no acceptable basis for the requested recommendation as to claims 7 to 10.

Apparently, the board declined to act pursuant to Rule 196(c) because the rejection of all the claims under the first paragraph of §112, which it affirmed, still would have prevented the claims from being "allowed in amended form." Inasmuch as (1) we have reversed this other rejection, (2) the necessity of amending claims 7-10 to include the additional limitation was first asserted by the board, and (3) appellants have had no opportunity to so amend their claims (as they clearly are willing to do), we *suggest* that the board consider whether, under these circumstances, a recommendation under Rule 196(c) is now in order.

The decision of the board is *reversed* as to claims 11 and 12 and *affirmed* as to claims 7-10.

Court of Customs and Patent Appeals

In re HALLECK

No. 8280 Decided Mar. 12, 1970

PATENTS

1. Claims — Functional — In general (§20.451)

Specification — Sufficiency of disclosure (§62.7)

Functional term "an effective amount * * * for growth stimulation" is not objectionable where amount as such is not critical; those skilled in the art will be able to determine from written disclosure and its examples what an effective amount for growth stimulation is; granted that proportions may vary, determination of amounts is not beyond skill of the art and does not involve undue experimentation to ascertain them; on the other hand, for applicant to ascertain and recite numerical limits for each parasympatholytic agent known would very likely require undue research.

Particular patents—Regulating Growth

Halleck, Method and Composition for Regulating Animal Growth, claims 1, 3, 11 to 13, 17 to 19, 27 to 30, and 34 of application allowed.

Appeal from Board of Appeals of the Patent Office.

Application for patent of Frank E. Halleck, Serial No. 301,997, filed Aug. 14, 1963; Patent Office Group 170. From decision rejecting claims 1, 3, 11 to 13, 17 to 19, 27 to 30, and 34, applicant appeals. Reversed.

RONALD E. LUND, Minneapolis, Minn. (C. WILLARD HAYES, Washington, D. C., of counsel) for appellant.

JOSEPH SCHIMMEL (JACK E. ARMORE of counsel) for Commissioner of Patents.

Before RICH, Acting Chief Judge, ALMOND, BALDWIN, and LANE, Associate Judges, and FORD, Judge, United States Customs Court, sitting by designation.

ALMOND, Judge.

This is an appeal from the decision of the Patent Office Board of Appeals affirming the rejection of claims 1, 3, 11-13, 17-19, 27-30 and 34 in appellant's application entitled "Method and Composition for Regulating Animal Growth."[1] No claims have been allowed.

The invention, we are told, is based upon the discovery that relatively small amounts of peristalsis-[2]inhibiting drugs, when properly administered with the water or feed of animals or as a separate material, either orally or parenterally, are effective for increasing the growth rate or increasing the feed efficiency of the animals and, in many cases, for improving both of these.

Preferred peristalsis-inhibiting substances are those which are highly specific for the smooth gastrointestinal muscles and which do not materially affect digestive enzymes or possess other deleterious side effects. Specifically disclosed are parasympatholytic agents, also referred to as anticholinergic agents, such as atropine, methantheline bromide, propantheline bromide, piperidolate hydrochloride, pipenzolate methyl bromide, as well as derivatives of some of these.

The invention is said to be applicable to all types of animals and poultry. Illustrative are claims 1 and 19:

> 1. An improved growth stimulating composition for animals which comprises an animal feed and an effective amount of

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[1] Serial No. 301,997 filed August 14, 1963 and alleged to be a continuation-in-part of serial No. 149,857 filed November 3, 1961.

[2] Webster's Third New International Dictionary (1961) defines peristalsis as follows:

> * * * successive waves of involuntary contraction passing along the walls of the intestines or other hollow muscle structure and forcing the contents onward.

純度検査・発芽率検査

IRSTで規定されている主な牧草の発芽試験条件

種	規定			休眠打破勧告法 その他の指示事項
	発芽床	温度(℃)	試験期間	
オーチャードグラス	紙の上	20-30の変温又は15-25の変温	21日	予冷;KNO
イタリアンライグラス		20-30の変温、15-25の変温又は20の恒温	14日	
チモシー		20-30の変温又は15-25の変温	10日	
アルファルファ	紙の上又は紙の間	20の恒温		予冷
アカクローバ				
シロクローバ				予冷;ポリ袋に封入

試験期間中の照明は一般に望ましい。
注:変温の温度の組合せは、低温16時間、高温8時間。照明は高温期に行う。
予冷とは、試料を試験期間の開始前に1週間5℃の条件下に置くこと。
KNO3は、水の代りに0.2%KNO3溶液を使用することを示す。

EXHIBIT A

[English Translation of Exhibit A]

The condition for germinating grasses based on IRST

Species	Regulations			Other instructions
	Matrix for germination	Temperature(℃)	Period of test time	
Orchardgrass	On top of paper	20~30℃, or 15~25℃	21 days	Cooled in advance; KNO
Italian Rye-grass		20~30℃, 15~25℃, or 20℃(Constant)	14 days	
Timothy		20~30℃, or 15~25℃	10 days	
Alphalpha	On top of paper, or between the papers	20℃(Constant)		Cooled in advance
Krano				
Rivendel				Cooled in advance; enclosed in polyvinyl bag

EXHIBIT
tabbies
A

existence of actual confusion was established in Hunt but has not been established here.

[3] Considering the wide variety of different goods currently sold in supermarkets and the absence of survey or other evidence tending to establish a likelihood of confusion, we agree with the board's statement that "considering the nature of the word 'FAULTLESS' and the differences between the goods here involved, it is our opinion that applicant's use thereof is not at all likely to cause confusion, mistake or deception or to falsely suggest a connection with opposer," which is but another way of saying that Faultless failed to meet its burden of establishing a likelihood of confusion. Accordingly, the decision of the board is affirmed.

Court of Customs and Patent Appeals

In re Rinehart

No. 75-608 Decided Mar. 11, 1976

CONTENTS

Double patenting — Copending applications (§33.5)

Double patenting rejection that was based on copending parent application and affirmed by Board of Appeals is mooted by applicant's express abandonment of application's express abandonment of Board's decision.

Patentability — Anticipation — Combining references (§51.205)

Patentability — Invention — In general (§51.501)

Determination under 35 U.S.C. 103 requires consideration of entirety of disclosure of prior art references to those skilled in the art.

Patentability — Invention — In general (§51.501)

Prima facie case of obviousness is established when teachings of prior art appear to suggest claimed subject matter to person of ordinary skill in art; it is incumbent upon applicant to go forward with objective evidence of unobviousness once prima facie case is established.

4. Board of Appeals — In general (§19.05)

Patentability — Invention — In general (§51.501)

Prior adjudication — New evidence or new issues (§56.25)

It was error to adopt earlier conclusion of prima facie obviousness that was based on parent application and cited references when Board of Appeals had continuation application, prior art, and unrebutted facts established by inventor's affidavit before it, so that no question of prima facie obviousness remained; obviousness determination must be made in light of all evidence.

5. Patentability — Evidence of — In general (§51.451)

Patentability — Invention — In general (§51.501)

Patentability — Invention — Law or fact question (§51.507)

Concept of prima facie obviousness is not segmented concept; decision-maker must start over when rebuttal evidence is submitted after prima facie obviousness is established; question of whether applicant's burden of going forward to rebut prima facie case has been successfully carried requires that entire path to decision be retraced; earlier decision should not be considered as set in concrete and applicant's rebuttal evidence evaluated only on its knockdown ability; prima facie obviousness is legal conclusion, not fact; facts established by rebuttal evidence must be evaluated along with facts on which earlier conclusion was reached, not against conclusion itself.

6. Applications for patent — Continuing (§15.3)

Patentability — Change — Proportions (§51.259)

Mere inclusion of "commercial scale production" and "commercial scale quantities" in claims of continuation application does not patentably distinguish them over claims of parent application.

7. Patentability — Change — Proportions (§51.259)

Patentability — Invention — In general (§51.501)

Mere scaling up of prior art process capable of being scaled up would not establish patentability in claim to old process so scaled; mere use of commercial quantities cannot establish unobviousness of invention as whole.

8. **Affidavits — Distinguishing from references (§12.7)**

Patentability — Change — Proportions (§51.259)

Reference to "commercial scale quantities" in claims and inventor's affidavit establishes invention's environment, outlining problem solved and giving dimension to inventor's contribution, but does not establish patentability.

9. **Patentability — Anticipation — Combining references (§51.205)**

Patentability — Change — Proportions (§51.259)

Patentability — Invention — In general (§51.501)

Some predictability of success is required in any attempt to combine elements of reference processes in commercial scale operation; view that success would have been "inherent" cannot substitute for showing of reasonable expectation of success; inherency and obviousness are entirely different concepts.

10. **Court of Customs and Patent Appeals — Issues determined — Ex parte patent cases (§28.203)**

Patentability — Anticipation — Combining references (§51.205)

Patentability — Change — Proportions (§51.259)

Patentability — Invention — In general (§51.501)

Absence of suggestion in prior art patents that features of one should be combined with those of other to achieve commercial scale production of which neither is capable requires conclusion that obviousness rejection of claims directed to commercial scale production was improper, making it unnecessary for court to consider allegations of commercial success and satisfaction of long-felt need.

Particular patents — Resin

Rinehart, Process for Preparing Resin, rejection of claims 1-9 reversed.

Appeal from Patent and Trademark Office Board of Appeals.

Application for patent of Verne R. Rinehart, Serial No. 130,743, filed Apr. 2, 1971, continuation in part of application Serial No. 667,854, filed Sept. 14, 1967, continuation in part of application Serial No. 254,754, filed Jan. 29, 1963. From decision rejecting claims 1-9, applicant appeals. Reversed.

Paul H. Heller, New York, N.Y. (Hugh A. Chapin, Kenyon & Kenyon Reilly Carr & Chapin, and Malvin R. Mandelbaum, all of New York, N.Y., and Ford W. Brunner and James M. Wallace, Jr., both of Akron, Ohio, of counsel) for appellant.

Joseph F. Nakamura (Jack E. Armore, of counsel) for Commissioner of Patents and Trademarks.

Before Markey, Chief Judge, and Rich, Baldwin, Lane, and Miller, Associate Judges.

Markey, Chief Judge.

This is an appeal from the decision of the Patent and Trademark Office Board of Appeals (board) affirming the examiner's final rejection of claims 1 through 9, which are all the claims in appellant's (Rinehart's) application serial No. 130,743, filed April 2, 1971[1] entitled "Process for Preparing Resin." We reverse.

The Invention

Commercial scale quantities of polymeric ethylene terephthalate (PET) are produced in either a batch or continuous process by heating a dicarboxylic acid with glycol in the presence of a preformed low molecular weight polyester solvent[2] under superatmospheric pressure and utilizing a low ratio of glycol to acid. The product may be conventionally condensation polymerized in the presence of a catalyst.

The claims have been treated together by Rinehart and the solicitor and will be so treated here. Claims 1 and 4 are illustrative:

> 1. The method for the commercial scale production of polyesters which com-

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[1] The present application is a continuation-in-part of application serial No. 667,854 (parent), filed September 14, 1967, which in turn is a continuation-in-part of application serial No. 254,754, filed January 29, 1963, both of which are now abandoned. Prior to the present appeal, the rejection of parent application was appealed to the U.S. District Court for the District of Columbia. Goodyear Tire & Rubber Co. v. Schuyler, Com'r., Civil No. 666-71 (D.D.C., Feb. 25, 1975). Upon stipulation, that action was dismissed with prejudice, after the express abandonment of the parent application, but without prejudice to the allowance of materially different claims, or of the same or similar claims on a record supporting them, such as the record now before us.

[2] The solvent may include stabilizer, catalyst and ether inhibitors.

prises adding commercial scale quantities of ethylene glycol and a free aromatic dicarboxylic acid in the molar ratio of glycol to acid of from 1.7:1 to 1.05:1 to a solvent consisting of a preformed low molecular weight linear condensation polyester of a glycol and a dicarboxylic acid, said polyester having an average degree of polymerization of from 1.4 to 10, heating and reacting the mixture at a temperature above the melting temperature of the low molecular weight linear polyester at a pressure of from about 20 to about 1000 pounds per square inch gauge pressure until a linear condensation polyester resin of said glycol and acid having an average degree of polymerization of from 1.4 to 10 is formed..

4. The method for the commercial scale production of polyesters which comprises continuously adding commercial scale quantities of ethylene glycol and terephthalic acid in the ratio of from 1.7:1 to 1.05:1 of ethylene glycol to terephthalic acid to a solvent consisting of low molecular weight ethylene glycol-terephthalate polyester having an average degree of polymerization of from 1.4 to 10 while heating and reacting the mixture at a temperature above the melting temperature of the low molecular weight ethylene glycol-terephthalate polyester at a pressure range of from about 20 to about 1000 pounds per square inch gauge pressure, continuously venting the water vapor formed in the reaction at such a rate that the pressure in the system is maintained constant within said pressure range and continuously withdrawing an amount of low molecular weight ethylene glycolterephthalate polyester about equal to the amount of ethylene glycol and terephthalic acid add-

Board

The board affirmed the rejection of 1 through 9 under 35 USC 103 as ob- on Pengilly[3] and Munro et al. [4]) "considered together."[5] Both Pengilly and Munro form PET by heating, in either a batch or continuous process, a dicarboxylic acid with glycol, utilizing low ratios of glycol to acid (for example, 1.05:1.0 to 1.3:1.0 for Pengilly), and then polymerizing the low molecular weight ester formed therefrom in the presence of a catalyst. The processes differ in that the initial step of the Pengilly process is conducted at atmospheric pressure utilizing a preformed polyester solvent, whereas Munro operates at a higher pressure absent the solvent.

The appealed claims differ substantively from those of the parent application only in reciting "commercial scale production" utilizing "commercial scale quantities." Because the claims in the parent application had been rejected under 35 USC 103 on the same prior art and logic, the board merely adopted the previous board opinion, which held that the references established a case of "prima facie obviousness." The earlier board, agreeing with the examiner that Pengilly and Munro considered together rendered the claimed subject matter prima facie obvious because each suggested consonant advantages, stated:

> For example, Pengilly suggests that by using a polyester solvent shorter heating times and less glycol is required, and Munro et al suggests that by using higher pressures a shorter reaction time is required. One of ordinary skill in the polymer art would therefore expect that if higher pressures were used in other art processes (i.e., Pengilly) shorter reaction times would be necessary.[6]

The board considered the rebuttal evidence, a single affidavit by the inventor, Rinehart, to be insufficient. The primary apparent purpose of that evidence was to show the commercial inoperability of Pengilly and Munro, taken individually, compared to Rinehart's commercially used method. Rinehart's extensive affidavit included, however, substantial analysis of the entire field of polyester production and of what, in his view, Pengilly and Munro would actually teach those skilled in the art. The experimental pilot plant evidence is summarized below for a low charge molar ratio of glycol to acid (1.1:1.0):

Patent No. 3,427,287 issued February

Patent No. 3,050,533 issued August 21,

board also affirmed a double patenting of those claims under 35 USC 101 based copending parent application. Express ment of the parent application, subse- the board's decision, moots the issue.

[6] The earlier board also speculated that Munro's continuous process may "actually involve the use of preformed ester as the reaction solvent if the reaction takes place throughout the reactor and if, during the initial part of the process, the product is not withdrawn as rapidly as it is formed."

	Esterification Reaction			
	1 *Munro*	2 *Rinehart*	3 *Pengilly*	4 *Munro*
Pressure (psig)	40	40	0 (Atmos.)	40
Temperature (°C.)	250-261	248-252	*	260-262
Reactant Batch Size (pounds)	122.1	122.1	122.1	268.6
[Solvent]/Batch	No [Solvent]	1.2/1.0	1.2/1.0	No [Solvent]
Average Time (Min.)	330	150	657	483
	Properties of High Polymer			
% Ether	2.99	1.68	1.51	3.08
Melting Point	244.9	252.2	252.8	244.1
Gardner Rd	27.1	24.9	27.0	25.4
Gardner b+	14.0	8.3	13.6	17.8

*The temperature was increased at a rate of 3° C/30 minutes from about 220°C to 245°C.

Rinehart alleged commercial success, based on the 1970 conversion by Goodyear Tire and Rubber Company (the assignee of Rinehart) from the ester interchange method, used since 1959, to Rinehart's direct esterification method.

The affidavit states:

> Both the Pengilly, and Munro and Maclean, procedures based on my experience and as evidenced from their patents are operable on a small scale. However, neither of their patents points to any recognition of the problems which arise from scaling up to a commercial process. It is implicit in their patents that the described procedures are satisfactory for commercial operation; but I have found that their techniques are not satisfactory on a commercial scale at about equimolar proportions. The advantages claimed by Munro and Maclean for their process are a short reaction time, improved color, higher softening point and a minimum ether content. However, I have found that as the Munro and Maclean process is scaled up beyond laboratory equipment the reaction becomes inconveniently long, the color deteriorates, the melting point is lowered and the ether content increases. The process of Pengilly was similarly operable on a small scale and not suitable for scale-up to a commercial process.

The board concluded that the affidavit evidence did not rebut its finding of prima facie obviousness because, in its view, the prior art clearly suggested higher pressure, together with an expected attendant advantage of increased reaction rate, as a solution to the commercial difficulties allegedly encountered by Rinehart. Moreover, the recitation to which the affidavit is directed, "commercial scale production" utilizing "commercial scale quantities," was viewed as "inherently" obvious. The board did not consider the utilization of the claimed method by Rinehart's assignee to be evidence of commercial success sufficient to establish unobviousness.

Issue

Whether, in the light of all the evidence, the claimed method would have been obvious at the time the invention was made.

Opinion

[2] Pengilly and Munro individually teach methods for the production of PET which differ, in different respects, from that claimed by Rinehart. A determination under 35 USC 103, however, requires consideration of the entirety of the disclosure

made by the two references to those skilled in the art.

[3] A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art. Once such a case is established, it is incumbent upon appellant to go forward with objective evidence of unobviousness. In re Fielder, 471 F.2d 640, 176 USPQ 300 (CCPA 1973).

Prima Facie Obviousness

On the appeal involving Rinehart's parent application, the board was limited to the sterile evaluation of the claims and the prior art necessitated by availability of only the application and the cited references. Based on that evaluation, that board stated:

> We agree with the examiner that, in view of Munro et al., it would be obvious to operate the process of Pengilly at superatmospheric pressure. Looking at it from another point of view, it would be obvious in view of Pengilly to employ preformed ester as a solvent in the reaction of Munro et al.

On the appeal of the present application, the board stated:

> With regard to the rejection under Section 103, we find ourselves in substantial agreement with the position of the examiner as set forth in his answer. The claims on appeal are in essence the same as those in Serial No. 667,854, which is now before the District Court for the District of Columbia (Civil Action 666-71), the basic difference being the involved claims recite and are limited to "commercial scale production" utilizing "commercial scale quantities." The claimed invention is otherwise identical insofar as the material limitations defined are concerned. The claims in parent case Serial No. 667,854 were rejected under Section 103 over the same art applied herein and essentially for the same reasons. Insofar as the question of whether or not the combination of the teachings of Pengilly and Munro et al would render the claimed process prima facie obvious, the same arguments were presented by appellant and the examiner in both the prior case and herein. Based on these arguments, the Board of Appeals agreed with the position of the examiner and affirmed the rejection. Appellant has set forth no good and sufficient reason why we should reconsider the prior Board decision or reach any other conclusion based on the arguments alone; we therefore adhere to that position and adopt it as our own.
>
> The only remaining question for this Board to consider with regard to the Section 103 rejection is whether or not the affidavit filed under the provisions of Rule 132 is sufficient to rebut the prima facie case: in our opinion, it is not.

[4] The board erred in adopting the earlier opinion. The basis for evaluation and for decision had changed. The present board had before it not only the application and the prior art but all of the unrebutted facts established in Rinehart's affidavit. At that stage no question of prima facie obviousness remains. The appealed claims must be reconsidered in the light of all the evidence, and the resultant finding, that the claimed invention would or would not have been obvious, is to be made in such light.

[5] The concept of rebuttable prima facie obviousness is well established. Cf. In re Freeman, 474 F.2d 1318, 177 USPQ 139 (CCPA 1973); In re Klosak, 59 CCPA 862, 455 F.2d 1077, 173 USPQ 14 (1972); In re D'Ancicco, 58 CCPA 1057, 439 F.2d 1244, 169 USPQ 303 (1971). It is not, however, a segmented concept. When prima facie obviousness is established and evidence is submitted in rebuttal, the decision-maker must start over. Though the burden of going forward to rebut the prima facie case remains with the applicant, the question of whether that burden has been successfully carried requires that the entire path to decision be retraced. An earlier decision should not, as it was here, be considered as set in concrete, and applicant's rebuttal evidence then be evaluated only on its knockdown ability. Analytical fixation on an earlier decision can tend to provide that decision with an undeservedly broadened umbrella effect. Prima facie obviousness is a legal conclusion, not a fact. Facts established by rebuttal evidence must be evaluated along with the facts on which the earlier conclusion was reached, not against the conclusion itself. Though the tribunal must begin anew, a final finding of obviousness may of course be reached, but such finding will rest upon evaluation of all facts in evidence, uninfluenced by any earlier conclusion reached by an earlier board upon a different record.

[6] The board's analytical process appears to have resulted, at least in part, from Rinehart's erroneous argument that the mere inclusion of "commercial scale production" and "commercial scale quantities" served to patentably distinguish the appealed claims over those in the parent application. In response, the board engaged in comparison of the two sets of claims and

emphasized their essential identity. Whether engendered by Rinehart's arguments, the concentration on the "inherent obviousness" of scaling up led Rinehart and the solicitor into error.

[7] Rinehart erred in contending that the mere insertion into the claims of "commercial scale," without more, would constitute a distinguishing limitation. Though inclusion of the phrase in the claims does no harm, it is clear that mere scaling up of a prior art process capable of being scaled up, if such were the case, would not establish patentability in a claim to an old process so scaled. Moreover, absent evidence to the contrary, nothing in Pengilly or Munro indicates that their processes are not effective on a commercial scale, and Rinehart concedes that commercial operation is implicit in the reference patents.

Rinehart argues here that merely because the appealed claims include a "crucial limitation" to commercial quantities, they were "different claims" and that the board could not therefore have applied the earlier decision to them. We cannot agree. Absent the evidence in Rinehart's affidavit, use of commercial quantities in the processes of the references would have been obvious. If all Rinehart had done was to add the broad "commercial scale" phrases, the board's treatment would have been correct. It could not have found that the mere use of commercial quantities established unobviousness of the invention as a whole. But Rinehart did more. He submitted substantial evidence touching the basic question of whether his claimed process would have been obvious.

The board erred, as above indicated, in comparing the appealed claims to the earlier claims as though it had been established that the latter did in fact set forth an old or obvious process. In such comparison, the board proceeded as though the earlier claims were a kind of prior art to Rinehart and as though the earlier decision on those claims was a kind of res judicata. The differences between the two sets of claims were simply not at issue in this case. The sole question is whether Rinehart's claimed process would have been obvious in view of all the evidence.

The Evidence

The opinion of the board on the appeal involving the parent application included the following:

> Appellant alleges the existence of numerous difficulties with the processes of Pengilly and Munro et al. which, he claims, are overcome by combining the features of both processes. However, appellant's allegations are not supported by any evidence.

[8] The evidence now of record, in our view, does support Rinehart's allegations. The assertion that the processes of Pengilly and Munro cannot satisfactorily be scaled up is neither challenged nor rebutted. Though mere reference to "commercial scale quantities" in the claims and affidavit does not itself establish patentability, it does establish the environment of the invention. It outlines the problem solved and gives dimension to Rinehart's contribution. The claims must therefore be considered, and the references must be evaluated, in the light of an effort to achieve commercially effective production. As will appear hereinbelow, the affidavit evidence also spotlights portions of the prior art disclosures indicating unobviousness of the claimed process.

It is true that Pengilly and Munro both disclose processes for polyester production by direct esterification. Rinehart's affidavit admits that he began with an effort to employ the process of Pengilly on a commercial scale and that the only essential difference between the claimed process and that of Pengilly is the employment of superatmospheric pressure.

The board adopted the earlier opinion, which considered the claimed process as either that of Pengilly with the substitution of the superatmospheric pressure disclosed by Munro or that of Munro with the use of a preformed polyester as disclosed by Pengilly. But that view of the claimed process does not end the inquiry. The question remains whether it would have been obvious, in scaling up Pengilly's process, to have employed Munro's higher pressures or in scaling up that of Munro to have employed Pengilly's preformed polyester.

[9] The tribunals below did not meet the requirement of establishing some predictability of success in any attempt to combine elements of the reference processes in a commercial scale operation. As in In re Naylor, 54 CCPA 902, 369 F.2d 765, 152 USPQ 106 (1966), we find nothing in the record which would lead one of ordinary skill to anticipate successful production on a commercial scale from a combination of such elements, without increase in glycol-acid ratio. The record in fact reflects the contrary. The view that success would have been "inherent" cannot, in this case, substitute for a showing of reasonable expectation of success. Inherency and obviousness are entirely different concepts. In re Spormann, 53 CCPA 1375, 363 F.2d 444, 150 USPQ 449 (1966); In re Adams, 53 CCPA 996, 356 F.2d 998, 148 USPQ 742 (1966).

The board cited the indication in both Pengilly and Munro that their processes led to rapid reaction time and concluded that improved reaction time would be expected if elements of those processes were combined. The evidence of record establishes, however, that reaction times of both prior processes lengthen as the processes are scaled up.

The board held the view that Munro's teaching of higher pressures to increase reaction rate would have provided an obvious solution to the problem Rinehart encountered in scaling up the process of Pengilly. But Rinehart's problem was not the need for increased reaction rate. It was, as the evidence established, the existence of lumps of frozen polymer. That problem is nowhere alluded to in either Pengilly or Munro, and of course no suggestion of a solution appears in either reference.

Moreover, Pengilly suggested that superatmospheric pressure was productive of certain disadvantages, particularly the need for use of a "large excess" of glycol. The use of superatmospheric pressure in a direct esterification process was referred to in other prior patents of record. With the exception of Munro, however, each such reference cited disadvantages of its use or an inability to find it workable. Munro's disclosure of superatmospheric pressure is rendered an abstraction with respect to appellant's problem by Munro's indication of the same excess glycol requirement when a large scale operation is contemplated. Munro employs a large excess of glycol (a ratio of glycol to acid of 3:1) in his example the only example devoted to larger scale production. Rinehart's large scale production process is limited to a substantially equimolar ratio of glycol to acid. In view of the evidence, we cannot agree that Munro would suggest to one skilled in the art the use of superatmospheric pressure to solve the problem of scaling up the process of Pengilly.

Similarly, we find no suggestion in Pengilly or in Munro that Pengilly's preformed esters employed in Munro's process to overcome the problems encountered in scaling up the process of Munro. Munro, as co-inventor with Lewis in earlier British Patent 776,282, was familiar with the use of preformed polyester in direct esterification but neither Munro nor his co-inventor Lewis suggested its use with superatmospheric pressure in the cited reference. Nor that the Munro patent contains its solution to large scale operation, i.e., the use of excess glycol referred to above. This solution is not employed by appellant. The absence of any suggestion in either Pengilly or Munro that features of the process of one should be combined with features of the other to achieve the commercial scale production of which neither is capable requires a holding that the rejection herein was improper. In re Avery, 518 F.2d 1228, 186 USPQ 161 (CCPA 1975). In view of that holding, it is unnecessary to consider Rinehart's allegations of commercial success and satisfaction of long-felt need.

The decision of the board is reversed.

Court of Customs and Patent Appeals

In re Venezia

No. 75-601 Decided Mar. 11, 1976

PATENTS

1. Claims — Indefinite — In general (§20.551)

Construction of specification and claims — Defining terms (§22.45)

Claims that define claimed invention's metes and bounds with reasonable degree of precision and particularity are 35 U.S.C. 112, second paragraph, definite; claim language calling for sleeves "adapted to be fitted" over insulating jacket imparts structural limitation to sleeve rather than merely directing activities to take place in future; structures of components of completed assembly may be defined in terms of interrelationship of components, or attributes they must possess, in completed assembly.

2. Claims — Indefinite — Mechanical (§20.556)

Claims reciting all essential parts of "kit" of parts that may or may not be made into completed assembly are not incomplete for failing to recite completed assembly.

3. Claims — Indefinite — In general (§20.551)

In re Collier, 159 USPQ 266, is inapposite to claims containing language precisely defining present structural attributes of interrelated component parts of "kit" so that later assembly may be effected, rather than describing activities that may or may not occur.

4. Double patenting — In general (§33.1)

Patentability — Subject matter for patent monopoly — In general (§51.601)

Court of Customs and Patent Appeals decisions on double patenting are not

Court of Customs and Patent Appeals

In re Shetty

No. 77-515 Decided Nov. 17, 1977

PATENTS

1. Patentability — Invention — Specific cases — Chemical (§51.5093)

It is obvious and there is sufficient motivation to person skilled in chemical or pharmaceutical arts to substitute ethylene link between adamantane ring and amine for structurally-similar prior art methylene link.

2. Patentability — Invention — In general (§51.501)

Patentability — Invention — Specific cases — Chemical (§51.5093)

Fact that claimed method might be inherent in teachings of prior art is immaterial if one of ordinary skill in art would not appreciate or recognize that inherent method; mere hindsight assertion that corresponding dosages of prior art compounds useful for combatting microbial infestation, in light of which claimed compound is obvious, renders claimed method for appetite control obvious is untenable; inherency of advantage and its obviousness are entirely different questions; obviousness cannot be predicated on what is unknown.

Particular patents — Adamantane Derivatives

Shetty, Anorectic Adamantane Derivatives and Method of Using Same, rejection of claim 52 affirmed; rejection of claims 2-5 and 51 reversed.

Appeal from Patent and Trademark Office Board of Appeals.

Application for patent of Bola Vithal Shetty, Serial No. 171,736, filed Aug. 13, 1971. From decision rejecting claims 2-5, 51, and 52, applicant appeals. Modified.

Arthur A. Hechmer, Jr., and Edward A. Steiger, both of Philadelphia, Pa., for appellant.

Joseph F. Nakamura (Jack E. Armore, of counsel) for Commissioner of Patents and Trademarks.

Before Markey, Chief Judge, Rich, Baldwin, Lane, Associate Judges, and Morgan Associate Judge, United States Customs Court.

Rich, Judge.

This appeal is from that portion of the July 30, 1976, decision of the Patent and Trademark Office (PTO) Board of Appeals (board) rejecting claims 2-5, 51, and 52 in application serial No. 171,736, filed August 13, 1971, entitled "Anorectic Adamantane Derivatives and Method of Using Same." The board rejected the claims under 35 USC 103 on new grounds, as provided in 37 CFR 1.196(b), as obvious from Brake[1] in view of Narayanan,[2] Bernstein et al.,[3] and Bernstein.[4] We affirm the rejection of composition claim 52 and reverse the rejection of method claims 51 and 2-5.

The Invention

The invention pertains to a method, as defined in claims 51 and 2-5, of curbing appetite in animals by administering certain adamantane compounds.[5] The invention also pertains to the unit dosage form of a composition for curbing appetite comprising such an adamantane compound and a pharmaceutically acceptable carrier as defined in claim 52.

In the specification, appellant identifies his claimed compounds as follows:

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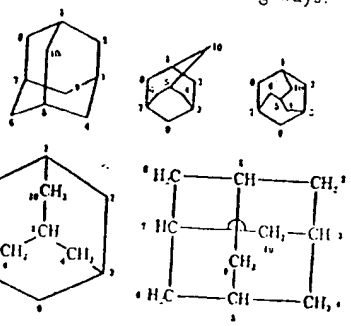
[1] U.S. Patent No. 3,489,802, issued Jan. 13, 1970, on application serial No. 610,779, filed Jan. 23, 1967.

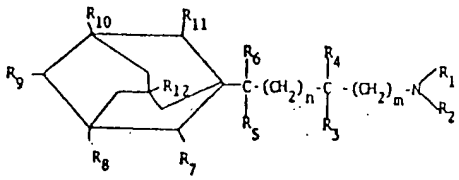
[2] U.S. Patent No. 3,501,511, issued Mar. 17, 1970, on application serial No. 661,781, filed Aug. 21, 1967.

[3] U.S. Patent No. 3,270,036, issued Aug. 30, 1966, on application serial No. 493,899, filed Oct. 7, 1965.

[4] U.S. Patent No. 3,320,249, issued May 16, 1967, on application serial No. 470,930, filed July 9, 1965.

[5] Adamantane is the trivial name assigned to tricyclodecane. Its structural formula can be represented in any of the following ways:



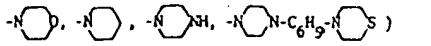


or their pharmaceutically acceptable acid addition salts, wherein:

R_1 = H, lower alkyl, aralkyl, aralkyl substituted with NH_2, OH, OCH_3, halogen, alkyl, NO_2; phenoxyalkyl or phenoxyalkyl substituted with NH_2, OH, OCH_3, halogen, alkyl, or NO_2; acyl such as formyl or acetyl.

R_2 = H, lower alkyl, COO-lower alkyl, aralkyl, aralkyl substituted with NH_2, OH, OCH_3, halogen, alkyl, NO_2; phenoxyalkyl or phenoxyalkyl substituted with NH_2, OH, OCH_3, halogen, alkyl, or NO_2; acyl such as formyl or acetyl.

R_1 and R_2 can be joined together to form, with the nitrogen, a heterocyclic ring (e.g.



R_3 = H, lower alkyl, or alkynyl

R_4 = H, lower alkyl, or alkynyl

R_5 = H, OH, halogen, or lower alkyl

R_6 = H, OH, halogen, or lower alkyl

R_5 and R_6 together may represent a carbonyl oxygen

R_7 = H, lower alkyl, halogen, hydroxy, alkoxy, amino or substituted amino, trifluoromethyl, sulfamyl, nitro, phenyl

R_8, R_9, R_{10}, R_{11}, R_{12} are any of R_7

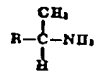
n = 0 to 4

m = 0 to 4

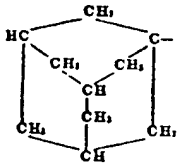
Independent claim 51 defines the "method of curbing appetite in an animal which comprises administering to the animal an amount effective to curb appetite of a compound" of the above formula.

The References

Brake describes a process for improving the yield of α-methyl multicyclic methylamines, one of which is α-methyl-1-adamantanemethylamine, illustrated as:

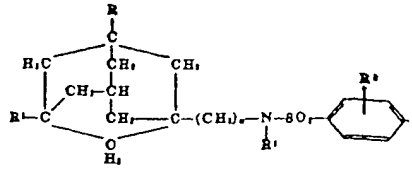


where R is * * *:



and is described as being useful as an antiviral agent in animals.

Narayanan teaches adamantyl s fonamide compounds, useful as timicrobial agents, e.g., as antiviral age of the formula:

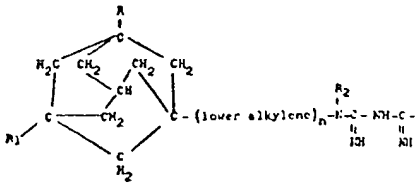


(I)

wherein R and R' each is hydrogen, halog lower alkyl, phenyl or phenyl-lower alkyl, R hydrogen or lower alkyl, R^3 is hydrogen, lo alkyl, lower alkoxy, halogen or halo-lower al and n is 0, 1 or 2, and salts thereof.

Narayanan also teaches the use of his co pounds in dosages corresponding to those appellant.

Bernstein et al. pertains to adaman biguanides of the formula:



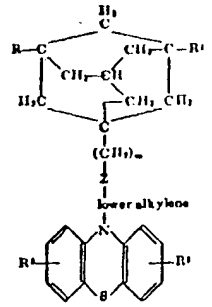
and to acid-addition salts thereof.

In Formula I, R and R_1 each is hydroge halogen, lower alkyl, phenyl or lower alkoxy, R_3 and R_4 each is hydrogen, lower alkyl phenyl-lower alkyl and n is 0 or 1.

These compounds are hypoglycemic ager effective in reducing blood sugar content mammals.

The compounds of the Bernstein pate are illustrated by the following formula:

(I)



and to acid-addition and quaternary ammoniu salts thereof.

These compounds are adamanty derivatives of phenothiazines, therapeutica ly active as central nervous syste depressants.

The Rejection

The examiner rejected appellant's claimed composition and method as obvious under 35 USC 103 in view of the teaching in Brake of administering to animals structurally similar adamantane derivatives "analogous" to those claimed. The Bernstein and Narayanan patents were cited to show similar compounds in the art. The examiner reasoned that the composition claim would have been obvious from the prior art because the respective compounds differ merely by a methylene group, i.e., the instant compounds have at least an ethylene link between the adamantane ring and the amine, whereas the prior art compound has a methylene link. This "minor molecular modification" was further asserted to be made obvious by the Bernstein and Narayanan patents, which disclose lower alkylene links between adamantane and other moieties and are directed to pharmaceutical uses.

The board treated the examiner's rejection as relying upon Brake alone and as citing the Bernstein and Narayanan patents to show the state of the art. The board did not sustain the rejection of claims 2-5, 51, and 52 as obvious from Brake alone because Brake's failure to disclose an amount of his compound effective as an antiviral agent renders unobvious the administration of "adjacent homologs of Brake's compound in an amount effective to curb appetite' * * *." Similarly, the board did not agree that appellant's composition in an "appetite curbing amount" would have been obvious from Brake alone.

Under 37 CFR 1.196(b), the board made a new ground of rejection under 35 USC 103 of obviousness from Brake in view of the Bernstein and Narayanan patents. The board agreed with the examiner that appellant's compounds having an ethylene linkage would have been obvious in view of Brake's corresponding adjacent homolog (methylene linkage). Relative to the method claims, the board found sufficient motivation in the prior art to administer Brake's compound and adjacent ethylene homologs" as antiviral agents, and concluded that administering appellant's compounds in appetite-curbing amounts would have been obvious from Brake and Narayanan since the amounts suggested by Narayanan to achieve antiviral effects encompass the amounts intended and claimed by appellant.

Arguments

Appellant contends that, after refusing to adopt the examiner's rejection on the basis of Brake alone, the board erred in rejecting the method claims by considering Narayanan in addition to Brake. Appellant argues that Narayanan's reference to dosage for treating viral infection is an improper basis for rejection. It is urged that the board mistakenly assumed that appetite-suppressant effects of appellant's compounds would be readily recognized from treating virus-infected animals with a related compound. It is also urged that the board ignored differences in treatments for viral infection and obesity, and that therefore Narayanan's dosage cannot be said to result in effective anorexia. Relative to the claimed composition, appellant states that there is an appreciable difference between the structure of the compounds of the claim and the prior art compounds, and that the former would not have been obvious because the motivation to make the required structural variation is absent.

The solicitor responds by arguing that in the absence of comparative evidence of any unexpected difference in the properties of appellant's and Brake's compounds, the compounds of the claim would have been obvious from and unpatentable over the structurally closely related compound disclosed by Brake. It is argued that Brake and Narayanan render obvious appellant's pharmaceutical carrier and "unit dosage form." As to the method claims, the solicitor contends that Narayanan discloses adamantyl compounds as antiviral agents in dosages that correspond to and would suggest similar and inherently appetite-curbing amounts of the Brake antiviral compound. The solicitor supports the board position that because appellant's compounds are homologous and there is sufficient motivation in the prior art to administer Brake's compound as an antiviral agent, appellant's different purpose does not render the method claims unobvious.

Opinion

We note at the outset that the ethylene linkage of appellant's compound closest to the prior art (β-(1-adamantyl)-a-methylethylamine) is referred to by the examiner as "analogous" to the methylene linkage of Brake's α-methyl-1-adamantanemethylamine and by the board as a "homolog." Since the appellant has not challenged either of these classifications, we proceed on the assumption that he accepts the inference that his compounds, whether homologs or analogs, would be expected to have similar properties to the prior art compound. Whether the adamantyl compounds in question are properly classified according

to the usual definitions of "homolog" and "analog," we shall not consider inasmuch as appellant has not argued the point.

The solicitor has taken the position that absent comparative evidence demonstrating any unexpected difference in the properties of the compounds, the claimed composition would have been obvious from and unpatentable over the structurally closely related compound disclosed in Brake. On the other hand, appellant contends that the presence of the ethylene rather than the methylene group constitutes "an appreciable difference in the claimed compound and the prior art compounds," and relies on In re Taborsky, 502 F.2d 775, 183 USPQ 50 (CCPA 1974) for support of his argument that without some teaching of motivation to make the required molecular variation, a finding of obviousness based on structural similarity is improper.

[1] Regarding this issue of structural similarity, we agree with the solicitor and the PTO position. The examiner noted the difference of a mere methylene group between the compound of the claim and the prior art compounds, cited the Bernstein and Narayanan references showing the state of the art as prior art knowledge of use of lower alkylene links between adamantane and other moieties, and concluded that "this minor molecular modification would clearly be obvious to the pharmaceutical chemist." We do not accept appellant's contention that the adjacent alkylene link in question constitutes an "appreciable difference" in the compounds. We think that a person skilled in chemical and/or pharmaceutical arts would not hesitate to extend the alkylene linkage of the prior art compound. Further, we note that appellant's compound closest to the prior art and its synthetic preparation are disclosed in Narayanan as one of a group of compounds for producing his adamantyl sulfonamide. This leaves no room for doubt that the prior art knowledge renders appellant's compound structurally similar and provides sufficient motivation to make it.

Moreover, appellant has no basis for relying on Taborsky, supra. Unlike the present case, the prior art of record in Taborsky *expressly limited* the scope of "halogen" to exclude appellant's claimed fluorosalicylanilide compounds and stated " '*several disadvantages in practice*' " of free salicylanilides. 502 F.2d at 781, 183 USPQ at 55 (emphasis supplied). Appellant here has shown no such reason to preclude the conclusion that appellant's compounds are structurally similar to the prior art compounds.

Confronted with PTO evidence of obviousness, appellant has offered no evidence of unobviousness, as by showing an actual difference in properties between his compounds and the prior art compounds. In re Hoch, 57 CCPA 1292, 428 F.2d 1341, 166 USPQ 406 (1970). Appellant merely shows that his novel compounds are appetite suppressants whereas the reference compound are not so known. Further, appellant has not indicated whether his compounds are antiviral, as is Brake's prior art compound. Presented with such an absence of comparative or other evidence with respect to the properties of the compounds and the claimed composition, we hold that composition claim 52 would have been obvious from and unpatentable over the prior art.

[2] Regarding method claims 51 and 2-5 the solicitor agrees with the board that:

> * * * the compounds of claim 51 are obvious from and unpatentable over the corresponding Brake compound and the Narayanan disclosure of a dosage which *corresponds* to appellant's disclosed appetite curbing dosage (therefore, *inherently* appetite curbing). [Emphasis added.]

We cannot accept this conclusion. The issue here is whether the claimed method of curbing appetite would have been obvious. That appellant's "amount effective to curb appetite" corresponds to or inheres in Narayanan's amount "to combat microbial infestation" does not persuade us of the obviousness of appellant's method. As this court said in In re Naylor, 54 CCPA 902, 905-06, 369 F.2d 765, 768, 152 USPQ 106, 108 (1966):

> [Inherency] is quite immaterial if, as the record establishes here, one of ordinary skill in the art would not appreciate or recognize that inherent result. * * *
>
> * * * we find nothing in the record which would afford one of ordinary skill reason to anticipate that a trial * * * [of the combined prior art teachings] would be successful in producing the polymer recited in the claims.

The Patent Office has failed to show a reasonable expectation, or some predictability, that Brake's compound would be an effective appetite suppressant if administered in the dosage disclosed by Narayanan. The mere hindsight assertion that corresponding dosages render appellant's method obvious is untenable.

Prior to appellant's disclosure, none of the adamantane compounds in any of the references before us suggested a use, much less a dosage, for curbing appetite. What we said in In re Spormann, 53 CCPA 1375, 1380, 363 F.2d 444, 448, 150 USPQ 449, 452 (1966), relative to inherency applies equally here:

> As we pointed out in In re Adams, 53 CCPA 996, 356 F.2d 998, 148 USPQ 742 [(1966)], the inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown.

Accordingly, the decision of the board is *affirmed* as to claim 52 and *reversed* as to claims 51 and 2-5.

District Court, N. D. Illinois, E. Div.

Radial Lip Machine, Inc.
v. International Carbide Corporation, et al.

No. 73 C 2945 Decided Sept. 29, 1977

PATENTS

1. Pleading and practice in courts — Jury trial — In general (§53.571)

Accused patent and trademark infringers whose counterclaim to complaint seeking damages demands damages for breach of contract and fraud, and payment of royalties under assignment contract, and presents several grounds for declaratory relief that would have given rise to right to jury trial if raised by coercive action, are entitled to jury trial on all factual issues common to legal and equitable claims.

2. Pleading and practice in courts — Jury trial — In general (§53.571)

Case in which only two competing corporations are involved, length of trial is estimated to be three weeks, there is no inundation of large number of documents, and patent validity is undisputed does not surpass limits of jury competence.

Action by Radial Lip Machine, Inc., against International Carbide Corporation, and Numac Research Industries, Inc., for patent and trademark infringement, in which defendants counterclaim for declaratory and equitable relief and damages. On plaintiff's motion to strike defendants' demand for jury trial. Motion denied.

William T. Kirby, Roger McFadden, and Hubachek, Kelly, Rauch & Kirby, all of Chicago, Ill. (Robert L. Harmon, Richard H. Compere, and Hume, Clement, Brinks, Willian, Olds & Cook, Ltd., all of Chicago, Ill., and Vincent L. Barker, Jr., and Owen & Owen, both of Toledo, Ohio, of counsel) for plaintiff.

Jack E. Dominik, Alan B. Samlan, and Dominik, Knechtel, Godula & Demeur, all of Chicago, Ill., for defendants.

Marshall, District Judge.

This is a civil action for patent and trademark infringement and breach of contract. The parties are three corporations involved in the development, manufacture and marketing of a "radial lip" drill which is used in the metal cutting industry. Plaintiff has moved to strike defendants' demand for a jury trial.

The factual background reveals a series of corporate transactions which have transferred patent rights and created numerous contractual obligations between the parties. In the late 1960's officers of the two defendant corporations, International Carbide Corporation and Numac Research Industries, Inc.,[1] developed the radial lip drill and applied for patents on the drill, its grinding apparatus and the grinding method. Defendants then entered into various licensing agreements with other corporations. In 1969, defendants executed an agreement with Calar, a holding company. The Calar agreement basically provided that in return for 10% of Calar's stock and a share of outstanding rents and royalties from leases and licensing agreements, defendants would transfer their patent rights and those outstanding contracts and licenses to Calar. Defendants also agreed to perform certain research and technical services for Calar and received a license to make, sell and resharpen radial lip drills. Calar subsequently transferred its interest in the agreement, including the drill patents and trademark, first to its wholly owned sub-

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[1] - The predecessor of these two corporations was Radial Lip Drill Company, which is to be distinguished from two other similarly named corporations in this case, Radial Lip Machine Corporation (a subsidiary of Calar) and Radial Lip Machine, Inc. (the present plaintiff).

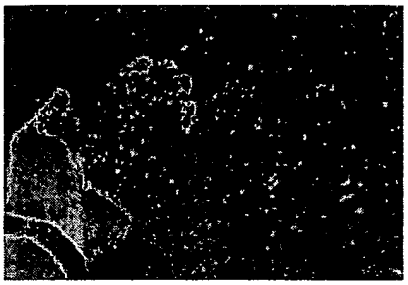
Saskatchewan Interactive

Agriculture

Crops

Reproduction

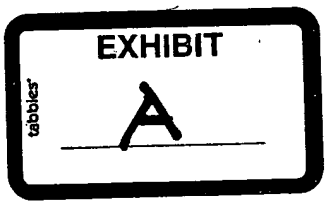
Plant Growth



What are seeds?

A seed is really a miniature plant in a "dormant" developmental stage. Once fertilization has occurred in a flowering plant, a seed eventually forms. The seed is actually the result of the maturation of the ovule; it contains a sporophyte embryo plus stored food. The agricultural definition of a seed refers to the unit that is planted, regardless of its structure.

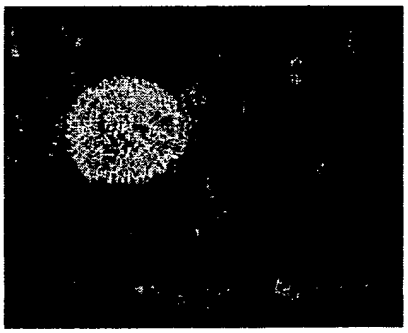
The ovary, and sometimes other floral parts, develop into a fruit. There are different types of fruit -- simple fruits develop from a single ovary, and may be fleshy, like peaches and apples, or dry, as in peas, beans or grains.



Seeds are composed of three basic structures:

- **embryo** - the young plant consisting of either one or two **cotyledons**; the **pummule** (new shoot); and the **radicle** (primary root). The pummule is further divided into the **epicotyl** (portion of stem above the attachment of the cotyledons) and the **hypocotyl** (portion of stem below the attachment of the cotyledons).
- **endosperm** - food (sugars, fats, proteins) storage area in monocots; the cotyledons store food in dicots
- **seed coat** - also called **testa**, the seed coat consists of one or more layers of protective tissue.

Seeds are a rich source of food as well as of fats and oils for industrial purposes. The reserves in cereals and legumes provide a large amount of the world's food supply. Seeds vary greatly in size, shape, form and nutritional content. Compare the faba bean seed to a flax seed; the size difference is obvious. Nutritionally, the faba bean provides much more protein than the flax seed but flax boasts a higher amount of B vitamins.



hi-res image

Seeds are dispersed in a variety of ways, via wind, water, animals and man. The success of angiosperms is due, in part, to the dispersal of seeds far from the parent plant. Tough seed coats enable seeds to lie dormant until conditions are favorable for germination and growth of the new plant. Different seeds require different conditions for germination. In some plants, cool, damp weather is necessary for germination, in others, the opposite is true.

What conditions affect seed germination?

Germination is the growth and development of a new plant from a seed and takes place in a series of steps. The fully developed embryo at the end of these steps is said to be a seedling. Not all seeds germinate, however, and the success of the start of the germination stage depends upon three main conditions; suitable **moisture**, **temperature** and **oxygen**. Other factors also influence the germination of seeds. These include the amount of light; **dormancy** of the seed; and, **viability** and **longevity**. Viability is the ability of the seed to germinate if

conditions are right and longevity is the length of time a seed can remain dormant and still be viable.

Seeds require sufficient amounts of **moisture** in order to ensure the rupture of the seed coat. The seed absorbs water from its surroundings, the amount of which depends on the type of plant. Dry soils, and over-saturated soils and salty-soils may hamper the amount of water absorbed by the seed.

The **temperature** at which a seed will germinate is dependant upon the type of seed. Some crops and weeds germinate at lower temperatures than others, and thus get a jump start in the fields of Saskatchewan. Research has produced plant varieties which are earlier germinators and thus more suited to our growing season. Most crops require a temperature of about 15°C for germination.

The circulation of **air** around the seed is important in the process of germination. Compact soils hinder germination because of the lack of oxygen and can result in rotting of the seed.

What are the stages of growth of a plant?

As stated, the first stage of a new plant begins at the **seedling** stage. Here, the new plant is undergoing differentiation of cells and tissues, that is, cells and tissues are developing to become part of stems, leaves, roots. While growth may seem slow, the seedling is very much active in growth of a different manner. The plant then undergoes a series of events, depending on the type (monocot or dicot). For example, following the initial stage of growth in monocots, is the stage in which the leaves of the plant increase to four (in most crops) and additional shoots or tillers begin to grow. During **tillering**, the meristems (growing areas) are also undergoing development but usually remain underground. Tillers are able to produce seed. The second stage in dicots is referred to as the rosette stage, in which the first true leaves emerge, the stem increases in thickness and the root system continues to develop. The third stage of development (monocots) is called **jointing**, where internodes begin to elongate and the nodes swell. This stage is followed by the development of the seed head (**heading**) and **flowering**. Dicots produce **buds** which then flower. In both types of plants, flowering is followed by **maturity** and the **ripening** of the seed. Once seeds are dispersed, the cycle repeats itself.

Updated Dec 14 2002

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Saline Water Management for Irrigation

(3rd Revised Draft)

Work Team on Use of Poor Quality Water for Irrigation (WT-PQW)

Compiled by

Dr. B.S. Tanwar
Former Director, Haryana Irrigation Research and Management Institute, Kurukshetra, India

International Commission on Irrigation and Drainage (ICID)
New Delhi, India
August 2003

agreement in the world as to the relative tolerance of many crops (Framji 1976). High temperature decreases the salt tolerance of crops; some of them are alfalfa, bean, beet, carrot, cotton, onion and tomatoes. Higher atmospheric humidity tends to increase somewhat the tolerance of crops as reported in USA, India, Near East and other countries. Rainfall, though does not have a direct effect on crop tolerance, may indirectly affect by leaching the response of plants to irrigation with saline water.

5.4.3 Crop Growth Stages and Varietal Differences

Plants are more sensitive during the early growth period than at later stages (germination, emergence, seedling). The salt tolerance increases as the plant advances towards maturity. The saline waters considered unacceptable in early stages of plant growth could be used profitably during later stages of growth without any reduction in crop growth (CSSRI, 2000). Rice is sensitive at seedling and flowering stages. Sugarbeet is tolerant at later growth stages but is sensitive during germination stage. Corn is tolerant at germination but is more sensitive at seedling, growth, ear and grain yield stages.

All India coordinated Research Project (AICRP) under Indian Council of Agriculture Research (ICAR) found in saline water conditions at Baptala 24% yield reduction in rice two days after transplanting followed by at fillering stage 17%, in onion yield reduction 78% with saline water irrigation at transplanting stage followed by 56% at bud formation stage and 18% at bulb development stage, in clusterbean 12% yield reduction at pod development stage; at Dharwad in maize about 13% yield reduction at sowing stage followed by 7% at tasseling stage and at Agra in safflower yield reduction was found at 21% at germination stage followed by 7% at rosette stage.

Varietal difference among crops may cause strong differences regarding salt tolerance among varieties and root stocks of fruit trees and vine crops. Tolerant plants require multiple adaptations to enable them to grow in saline environments. The problem faced by plant scientist wishing to enhance tolerance in crop plants is how to manipulate complex multigenic traits. The research work needs to be aimed at basic information about the genetic of physiological traits and attempts to discover genes regulating salt tolerance following the imposition of salinity stress and understating signaling cascades.

Modern molecular techniques can be used to analyze the genetics of quantitative traits determined by quantitative traits loci (QTLS) developing practical makers and map their positions for positional cloning to discover genes. The use of DNA-based technology is capable of dealing with large number of samples, markers may be a valuable means of assisting in the development of salt tolerance in plants. The molecular biological approaches may be helpful to enhancing salt tolerance (CSSRI 1993).

5.4.4 Crop Selection

Crop selection is an important management decision. The most desirable characteristics in selecting crop for irrigation with saline water are: (1) high marketability (2) high economics value, (3) ease of management (4) tolerance to salts and specific ions, (5) ability to maintain quality under saline conditions, (6) low potentional to accumulate trace elements, and (7) compatibility in crop rotation (Grattan and Rhoades 1990 – Tanji 1994). Other factors in crop or their evaporative demands are lower at planting stage.

5.4.5 Cultural Practices

Many factor that facilitate the use of saline water are related to management practices for short and long term salinity control. Adequate drainage and leaching to control salinity within the tolerances of the crops (or change to more salt tolerant crop that require less leaching for adequate salt control) are the ones most appropriate management practices for long term salinity control but there are separate cultural practices that can have a profound effect upon germination, early seeding growth and ultimately on yield of crop. The short term cultural practices that facilitates salinity control become more important as the irrigation water salinity increase over the time. These practices are adopted on annual or continual basis.

likelihood that the mark would "falsely suggest a connection with persons, living or dead, institutions, beliefs, or national symbols or bring them into contempt or disrepute". We cannot give the term "may" a broad and indefinite meaning so encompassing as to contravene the evidence presented.

[3] Since we find that the evidence presented is persuasive at this time that there is no reasonable likelihood of a false suggestion with a governmental institution or "national symbol", we conclude that the mark should be published in the Official Gazette in accordance with Section 12(a).

Decision

The refusal to register by the Examiner of Trademarks is reversed.

Patent and Trademark Office Board of Appeals

Ex parte Hartmann

Patent issued Nov. 12, 1974
Opinion dated Apr. 26, 1974

PATENTS

1. Words and phrases (§70.)

"Partial drawing" is intentional, positive act over and above any incidental elongation arising from handling of filaments.

2. Patentability — Invention — In general (§51.501)

Patentability — Anticipation — Combining references (§51.205)

References cannot properly be combined if effect would destroy invention on which one of reference patents is based.

3. Claims — Article defined by process of manufacture (§20.15)

Patentability — Subject matter for patent monopoly — Process, product, and apparatus (§51.613)

Product-by-process claim may be used if language is not vague and indefinite.

4. Board of Appeals — Procedure and practice (§19.45)

Patent and Trademark Office Board of Appeals will follow rulings of Court of Customs and Patent Appeals rather than inconsistent portions of Manual of Patent Examining Procedure.

Particular patents — Plastic Film

3,847,729 Hartmann, Deep-Drawable Plastic Composite Comprising Plastic Film on Fibrous Support, claims 1-3 and 5-12 allowed.

Appeal from Group 160.

Application for patent of Ludwig Hartman, Serial No. 3,129, filed January 15, 1970. From decision rejecting claims 1-3 and 5-12, applicant appeals (Appeal No. 141-93). Reversed; McKelvey, Acting Examiner in Chief concurring with opinion.

Johnston, Keil, Thompson & Shurtleff and Herbert B. Keil, both of Chicago, Ill., for applicant.

Before Schneider and Serota, Examiners in Chief, and McKelvey, Acting Examiner in Chief.

Schneider, Examiner in Chief.

This appeal is from the final rejection of claims 1, 2, 3, and 5 to 12. Claim 4 was withdrawn from further consideration as being directed to a nonelected invention.

Claims 1 and 9 are representative:

1. Deep-drawable composite comprising:

a) a plastic film of deep-drawable plastic,

b) a non-woven fleece consisting essentially of partially drawn and further drawable filaments which are drawable upon deep-drawing of the plastic film,

c) said plastic film coating said fleece.

9. Deep-drawable composite comprising:

a) a plastic film of deep-drawable

b) a non-woven fleece consisting essentially of randomly disposed partially drawn and further drawable continuous monofilaments formed by gas stream drawing and collected to form the nonwoven fleece, said continuous monofilaments having an elongation to breakage of about 100-400%, and being bonded together with a binding agent,

c) said plastic coating said fleece.

The references relied on are:

Graham et al.	2,715,591	Aug. 16, 1955
Reynolds	3,158,525	Nov. 24, 1964

Claims 1 and 5 to 8 stand rejected under 35 U.S.C. 102 as anticipated by Graham et al. We will not sustain this rejection. In our opinion these claims are not fully met by Graham et al. The claims recite the filaments as "partially drawn" before being coated with a plastic filament. Not only does Graham et al. not teach this but, as recognized by the Examiner, Graham et al. teach the use of *undrawn* fibers. The examiner's arguments that appellant's claims are sufficiently broad to encompass essentially no partial drawing, or that a routineer would expect some orientation in the fibers from handling are not deemed to be per- [1] suasive. We believe that the routineer would construe "partial drawing" to mean an intentional, positive act over and above any incidental elongation arising out of normal handling of the filaments.

Claims 2, 3 and 9 to 12 stand rejected under 35 U.S.C. 103 as unpatentable over Graham et al. in view of Reynolds. We do not agree with this rejection.

[2] Reynolds teaches neither partial nor complete orientation of filaments in the film matrix. More importantly however, Reynolds cannot properly be combined with Graham et al. relative to the employment of continuous monofilaments, since to do so would destroy that on which the invention of Graham et al. is based, namely, the use of very short fibers. We will not sustain this rejection.

[3] Claims 9 to 12 were further rejected under 35 U.S.C. 112, presumably the second paragraph, as being "improper" product-by-process claims. We do not agree with this rejection.

The issue raised by the examiner is not "whether product-by-process claims are *ever* proper in this or any application, but whether they are proper when the product can be described without reference to the process." (Answer, page 4).

It is apparently the examiner's position that the instant composites can be defined apart from the method by which the fleece thereof is made in view of claim 1. Claim 1, however, is in itself a product-by-process claim in view of the process limitation "partially drawn".

In any event, assuming that the fleece of appellant's composite is capable of being defined apart from the method by which it is made, we nevertheless believe a product-by-process type claim may properly be used by appellant.

We recognize that the M.P.E.P. provides in Section 706.03(e) (3rd Ed., Rev. 39, 1974):

> "Applicant must * * * make a showing that the product cannot be described except by reference to the process of making it. * * * Accordingly both product claims described by characteristics and product-by-process claims concurrently are inconsistent."

Our reviewing Court has made it plain that if an applicant is claiming what he regards as his invention (a point not here in issue), there is only one basic ground for rejecting a claim under the second paragraph of Section 112, namely, the language employed does not set out and circumscribe a particular area sought to be covered with a reasonable degree of precision and certainty. See e.g., In re Moore, 58 CCPA 1042, 439 F.2d 1232, 169 USPQ 236, 238 (1971); In re Swinehart, 58 CCPA 1027, 439 F.2d 210, 169 USPQ 226, 229 (1971).

Our reviewing Court has also made it plain that:

> "* * * a product-by-process claim, does not inherently conflict with the second paragraph of 35 U.S.C. 112." In re Brown, 59 CCPA 1036, 459 F.2d 531, 173 USPQ 685 (1972).

See also In re Luck, 476 F.2d 650, 177 USPQ 523 (CCPA 1973). In In re Steppan, 55 CCPA 791, 394 F.2d 1013, 156 USPQ 143 (1967), the Court states:

> "The problem, in essence, is thus one of determining who shall decide how best to state what the invention *is*. By statute, 35 USC 112, Congress has placed no limitations on *how* an applicant claims *his invention*, so long as the specification concludes with claims which particularly point out and distinctly claim that invention."

See also In re Pilkington, 56 CCPA 1237, 411 F.2d 1345, 162 USPQ 145 (1969).

The examiner has not indicated, nor do we find, anything vague and indefinite about the language of claims 9 through 12. Accordingly, we see no basis for rejecting claims 9 through 12 as being drawn to so-called improper product-by-process claims.

[4] We recognize that the position we take is inconsistent with that portion of the M.P.E.P. quoted above. However, we are constrained to follow the ruling of our reviewing court (CCPA) with which the manual is at variance on this point. We will not sustain the rejection.

The decision of the Examiner is reversed.

McKelvey, Acting Examiner in Chief, concurring.

I agree with the disposition of each rejection and all that is stated in the principal opinion. In connection with our decision reversing the examiner's rejection of claims 9 through 12 as being so-called "improper" product-by-process claims, I wish to add the following observations.

In fairness, it must be recognized that in making the rejection, the examiner was following guidelines provided to him via the Manual of Patent Examining Procedure and, specifically, that portion of the Manual quoted in the principal opinion. However, as was pointed out in Ex parte Schwarze, 151 USPQ 426, 1966 C.D. 10 (Bd.App. 1966):

> "The Manual of Patent Examining Procedure merely provides guidelines for examiners in the Patent Office. It does not replace, and is subservient to, applicable statutes, Rules of Practice, and prior decisions."

As I understand today's decision, this Board is holding, in effect, that the portion of the Manual quoted in the principal opinion is inconsistent with 35 U.S.C. 112, second paragraph, and, therefore, does not accurately state the law. With such a holding I am in complete agreement. Based on this decision, it follows that the quoted portion of the Manual is no longer viable. It also follows that an applicant may, if he chooses to do so, claim a composite in terms of a "product-by-process," provided the claim is definite, notwithstanding the fact the product might be capable of being claimed by reference to its characteristics.

Patent and Trademark Office Trademark Trial and Appeal Board

In re Edward Weck & Company, Inc.

Decided Apr. 17, 1975

TRADEMARKS

Marks and names subject to ownership — Descriptive — Particular marks (§67.5081)

"Dermaclip" is merely descriptive of devices for clamping skin together during operation.

Hauck, Ansorge, Begler & Krentz, New York, N. Y., for applicant.

[Editor's Note: This decision was designated by the Board to appear in digest form only.] Application for registration of trademark of Edward Weck & Company, Inc., Serial No. 431,869. Decision of Examiner of Trademarks refusing registration affirmed by decision (Leach, Waldstreicher, and Lefkowitz, Members) holding that applicant's "Dermaclip" is merely descriptive of devices for clamping skin together during operation.